

The Passing of the Gold Foil Filling. A Further Reply to the Critique Presented by Dr. C. Edmund Kells.

By Henry W. Gillett, New York.

For a reason that will be apparent as I proceed, the Editor of ITEMS OF INTEREST has asked me for further comment on the situation developed by Dr. C. Edmund Kells's critique on the paper of Dr. J. Lowe Young, entitled "Restoration of Occlusion by the Casting Process," and on the editorial referring to it, both of which were in the May issue.

Drs. Young and Ottolingui have replied effectively to many of the arguments advanced by Dr. Kells, but there remain several of his assertions which in my estimation should not go unchallenged.

I still have in my specimen box a reproduction of large inlays in some bicuspids and molars, which at the time they were made I con-



sidered excellent specimens of restoration of occlusal surfaces. They present good cusp restoration, but like the shell crowns shown by Dr. Kells they were defective in shape because of the round-bottomed furrows, instead of normally shaped sulci. These abnormal sulci were so made as to permit of polishing with a revolving tool. Because of this defective shape they were much less efficient as masticators than restorations of the type advocated by Dr. Young.

Ceeth in Old Age.

Under the subheading, "Form of Teeth in Old Age," in Dr. Kells's critique, he makes statements that again seem surprising when coming from Dr. Kells. I can readily understand that an operator

having at his command only gold foil and plastic filling materials might find it necessary to sacrifice efficiency of masticating surface by such grinding away of cusps as Dr. Kells advocates, but when in the same article he shows that he is familiar with gold inlay work I fail to follow his reasoning.

If the conditions in a given case are such that for any reason it is impossible to restore approximately normal occlusal lines—normal to the condition of the mouth in question—then I can conceive that even to-day an operator may be reluctantly compelled to eliminate certain cusps from contact with opposing cusps, but to announce an "invariable policy" of destroying the usefulness of all bicuspids in which there are "saddle" fillings, seems out of harmony with present progress. Not only does it seem to me needless, but when considered in connection with Dr. Kells's illustrations of his idea of perfect occlusal restoration, it seems an invitation to disaster of just the type he is trying to avoid. A bicuspid with an M. O. D. filling, and its cusps shortened, must necessarily find a contact somewhere with the opposing tooth, and in the type of restoration figured by Dr. Kells, with the cusps shortened, this must usually be in the centre of any filling he has inserted.

Perhaps teeth are different in New Orleans, but in New York such a contact of an opposing lower bicuspid, for instance, would mean greater likelihood of splitting as a result of the wedge-like action of the filling on which such force was exerted, than would be the case if the walls were cut back and a normal restoration made with a groove in the bottom of the sulcus and the contact points for the opposing cusps supplied by normal inclined planes.

Under this same heading Dr. Kells states what he says "is an indisputable fact"—namely, "that in most mouths there are very decided deviations from normal, and in very many, if not most of them, the consequent usefulness is so slightly lessened as to be inappreciable."



This seems to me a very erroneous personal opinion instead of an indisputable fact. I believe every careful observer of dental arches can call to mind cases where deviations from normal no greater than those resulting from the free grinding of cusps that Dr. Kells seemingly advocates has eventually resulted in such changed relations of the occlusal surfaces as to reduce the efficiency of the masticating organs a very material percentage.

Objects of Dentistry.

This attitude of his statement that, as he understands it, "one of the principal objects of dentistry is to save teeth," convinces me that, in spite of his marked ability, he is still thinking in the terms of

the last decade.

My understanding of the office of the dental profession is different. I think it is broader. To be sure, it includes the saving of teeth, but I believe the paramount issue in the minds of those who are moulding dental thought to-day is the maintainance of efficiency and of health of the masticating organ as a working unit.

I believe we have been focusing too closely on the individual tooth, and too ften have lost sight of its relations to the masticatory organ as a whole.

It seems to me this is what Dr. Kells is doing when he advocates a type of filling for a given tooth which obliterates the normal lines of that tooth and reduces its functioning capacity, and again when he advocates obliteration of the planes effective in mastication from the occlusal surfaces of teeth in which a modification of the restorative process selected would obviate the need for such obliteration.

To "save" a tooth by grinding away its cusps and so destroying its usefulness, when by reasonable processes those cusps may be restored, or protected, and their full usefulness retained, seems an ill service to render a patient.

By all means save the tooth if it is capable of being a healthy member of the dental family, but strive to save it in a way that will leave it a virile member and not a helpless paralytic or a limping cripple.

I do not wish to interpret wrongly or unfairly any word that Dr. Kells has written, and if the above statements do not fairly interpret his words, or logically state the results that must follow the procedures he has advocated, I shall be giad to be corrected.

Caries After Correction of Malocclusion.

Now for the reason why I was invited into this discussion.

The case shown on page 739, October ITEMS OF INTEREST, Figs. 24, 25, 26 and 27 (Young), is one in which I made and inserted the inlays. Let me



first get the personal factor out of the way as being of minor importance, but still of sufficient importance to me, at least, to warrant disposing of it fairly.

If those inlays had been made at any time since the presentation of Dr. Young's first paper on inlay carving, or even within several months previous, I should be unwilling to own up to them.

They were made at a time when I was still under the influence of the inheritance from the previous generations of dental workers—those generations that never had a process at their command, which, within the bounds of reasonable endurance on the part of patient or operator permitted even decent cusp restoration, to say nothing of sulci and grooves, and which through many decades had found it impracticable to finish occlusal surfaces in any other manner than in sweeping curves that could be polished by revolving instruments.

To me it is not remarkable either that operative dentists were slow to realize the possibilities of occlusal surface restoration that Taggart's discovery and inventive genius opened to them, nor that the man to point the way should have been an orthodontist.

With new factors in cavity preparation, retention and technique to occupy our attention and tax our capabilities, it was logical that at first we should be quite content to produce the same type of occlusal surfaces that previous generations had handed on to us as correct.

Therefore, I feel that no further explanation is needful for the occlusal carving of this case than the statement that at the time it was made I had not awakened to the possibilities of our inlay work in that direction.

Now for the important factors of the case as Dr. Kells has presented them.

He states under the subhead, "Caries After Regulation":

"Upon reading Dr. Young's paper, another surprising feature is noted. It has been pretty generally taught that irregular teeth induce caries, and that, if for no other reason than for their preservation, such teeth should be straightened.

"In Figs. 24 and 25 of this paper are shown very pretty upper and lower arches, and the teeth are seen to be free from caries. These models were taken at the age of fifteen.

"Figs. 26 and 27 show the same case one year later, and what do we find? No less than thirteen of these teeth have practically 'all gone to pieces' during this short period of time. That certainly is a pathetic picture to contemplate."

Certainly a pathetic picture, as Dr. Kells paints it.

But suppose we investigate a bit the lurid glow he has given it before



we accept for a fact the assumption that Dr. Kells evidently desires to thrust upon us—namely, that orthodontic work was responsible for the caries.

The facts are these:

First let me say with emphasis that the orthodontic work was not responsible for the caries. The subject had never been a robust child—nervous, anemic and always under careful observation.







Fig. 2.



Fig. 3.

Fortunately, it had been possible to prevent the threatened breaking down of dental tissue, but when Dr. Kells argues from inspection of the pictures of the first casts that the teeth were free from caries he is going too far.

The work was done in the manner shown because there was incipient approximal decay in some places, coupled with a condition of sulci and fissures that left no option when work was once begun, except to follow out all ramifications of the fissures when they were once opened at any point, and with such tendencies as made broad extension imperative when an approximal surface was cut into at all.

It was only after careful consideration and study of all sides of the

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Note.—In previous articles, the inlays were colored in the plaster models prior to making the photographs. In making those presented herewith, the casts have been left white, that our readers may see how difficult it is to detect the outlines of inlays when they really restore occlusal form.—Ep.



problem that the plan pursued was adopted as being the one best calculated to protect the usefulness and efficiency of that particular masticating organ.

The cavities were cut out in the manner indicated after consideration of all the known factors in the case.

This study led me to the conclusion that this particular child's highest welfare would be safeguarded by broadening the cutting of superficial approximal decay to the lines shown, and by including all the ramifications of occlusal fissures and any frail enamel resulting. The approximal decay was superficial but definite, and the history and environment such as to impose upon the operator the need for a type of work that would leave the fewest possible chances for continued decay.

Normal occlusion and malocclusion surely have a place in relation to dental caries, but in the case shown the malocclusion had not been the dominant factor in producing the caries, nor was the orthodontic apparatus responsible for it.

For a different type of child like the one whose left molars are shown in Figs. 1 and 2, who is robust, of sanguine temperament, excellent family history and with ideal local environment, it would have been reprehensible to pursue such a course.

Dr. Kells seems to me in effect to imply in his concluding paragraph that the inlay worker can only make beautiful restorations when they are extensive. Just as a test I tried this idea out in some cases in hand when his critique reached me, and the result in some small fissure cavities in the mouth of the patient referred to above, another child of fifteen, but a robust physique, where environment is ideal (Fig. 3), pleased me so well that I doubt if I shall have much use for foil either "soft" or cohesive in the small fissure cavities in the future. The cutting differed from the typical for "soft" gold only in having the edges beveled a little more. Perhaps it was also more shallow. The plaster casts are from modeling compound impressions of the occlusal surfaces taken with a generous lump of compound softened only on the surface, held snugly to place and cooled under pressure.

In the resulting plaster casts I had to look sharply, and in some of them compare with the dies to determine the exact location of the inlays.

When I started the two smallest of those shown I felt that I was doing a "stunt" rather than a practical piece of work. When they were completed I was better satisfied with the result than I could have been with any other known process of filling.

Therefore, the answer to Dr. Kells's question at the top of page 741 in his article seems very simple. It is that the operator of the future whom he asks about will keep himself fitted to replace any tooth tissue



lost by caries or traumatism by any process that best enables him to preserve permanently its *normal shape* and its *efficiency*, and that so far as can now be foreseen his choice of filling material in occlusal and approximal cavities, be they large or small, for patients old or young, will fall upon the cast gold inlay.

The Restoration of Occlusal Surfaces with Inlays.

By Alfred S. Walker, D.D.S., New York.

Dr. J. Lowe Young's paper, so severely criticised by Dr. Edmund C. Kells, does not advocate any "revolutionary ideas," neither does it attempt to "teach the dentists of the world how to fill teeth."

What was intended, and successfully accomplished, was to demonstrate the importance of reproducing the normal occlusal surface forms in our filling operations, not as an exhibition of skill, but as an essential procedure toward the preservation of the teeth and the associated parts.

No doubt Dr. Kells and many other capable operators invariably follow this practice.

Dr. Young's presentation of this subject, with his simple scientific explanation of the reasons for the existant normal form of the occlusal surfaces of the teeth and his demonstration of the comparative ease with which the results may be accomplished with the inlay, leaves no excuse for its rejection by those who wish to best serve their patients.

The many carefully prepared cavities filled with inlays that fit, and present well-formed contact points, but without any attempt at proper occlusal reproduction, bear witness to the fact that the importance of this part of the procedure has not been sufficiently recognized.

The abandonment of gold foil as a filling material is not advocated. It still has its place.

The writer cannot understand how the best-known method for the great majority of the profession to follow in the filling of teeth can be other than helpful to the Oral Hygiene movement.



Marking Dental Skiagraphs.

By C. Edmund Kells, D.D.S., New Orleans, La.

In taking skiagraphs upon plates of any size there is always plenty of room thereon for any markings the operator may choose to record, but when it comes to using films within the mouth, which are usually about $1\frac{1}{4}$ " x $1\frac{1}{2}$ ", and frequently much smaller, there has been reported no satisfactory way of marking them so that they can be readily distinguished.

Of course, if one *could* take proper care of his films always keeping them in their properly labeled envelopes, no trouble would ensue.

But this cannot be. A professional friend comes in, and possibly he wants to see, let us say root canal work. A half-dozen or more envelopes with their films enclosed are selected and taken into the dark room for examination. In a few minutes they are mixed up, but not hopelessly, for the operator can recognize them while they are fresh in his mind.

But unfortunately time is pressing, and as he shows his friend to the door and he is upon the point of returning to the dark room to replace the films each in its proper envelope he is interrupted, and the next he knows it is evening and he decides to await until morning to do this.

In the morning another distraction and postponement. Then they are put in a drawer *temporarily*, it is supposed, but a week or month will pass unheeded, by which time they are hopelessly mixed up.

Again, a choice lot are sent to a publisher as illustrations for an article, or possibly to some interested party for inspection, and when they are returned one is "too busy" to arrange them and it is the same old story.

The writer, who began taking skiagraphs in 1896 and has thousands of films on file, has hundreds of interesting ones hopelessly lost, or at least they are practically lost, for they cannot be identified.

Quite recently the writer's mind began to dwell upon the subject, when suddenly a system of marking films dawned upon him, which is so simple that it is surprising that it was not adopted fifteen years ago.

The principle is to use small merchandise tags, upon which all that is necessary to identify the films can be recorded. A hole is punched with a plate punch in the least desirable corner of the film and the tag is strung on.

After using this system for a short while it has proven, in the writer's opinion, simply perfect. Prints can be made from them without removing the tags, a very desirable feature; and best of all is the fact that the



writing can be read in hand, while all markings upon the films themselves must be read by transmitted light.

In this office the long-standing problem of marking films has been solved absolutely satisfactorily, and henceforth there will be no excuse for unidentified films.

The Value of Formaldehyde in Septic Root Canals.

By Frederick W. Frahm, Ph.G., D.D.S.

Professor of Operative and Prosthetic Technic. Dental Anatomy.

Assistant to the chair of Anesthesia and Physical Diagnosis.

Since it seems that everything new from a nation down to a hairpin has its ups and downs, its times of favor and shadows, the same can be said of the formaldehyde preparations, and at this time these seem to be in the shadows of disfavor. I think I should say seeming disfavor, because I fear that as clinicians and therapeutists we sometimes jump to conclusions without giving the drug which we condemn a fair trial.

The use of formaldehyde has been based a good deal on the theory, "If a little is good, more is better." When a fraction of a grain would have been sufficient, three or four times that amount has been used.

There was a time when mercurous chloride was used in large doses, even up to ten grains per dose. We have all heard of the effects of this dosing, if we may not have been permitted to see it. May I ask, did the medical profession discard this very valuable drug? No, I dare say not, for we all know what place it holds in the pharmacopea and the materiamedica of to-day, only it is now given with excellent results in from one-tenth to one-fourth grain doses. And I do not know of another drug so valuable, nor of one that can take its place.

The same may be said of formaldehyde. It has at this time found disfavor at the hands of some, not, I think, on account of its uses, but because of its misuse.

I am not going to formulate a fine theory as to the chemistry of what occurs or may occur in a putrescent tooth canal or pulp chamber. Just to call your attention to the fact that the products of decomposition of animal tissue bring into being many compounds, among which we find sulfuretted hydrogen, ammonia and its compounds, carbon dioxide, water and some solids. To this may be added some of the decaying foodstuffs.

Formaldehyde gas is a hydro-carbon with a formula of HCHO, capable of being absorbed by water and other compounds, forming new compounds, which may be acted upon by other agents forming condensation products, such as glutol with proteids; dextroform with carbohy-



drates; tannaform with urea and products containing tannin; urotropia with ammonia; and so on. I might mention many more. These condensation products are non-irritating and very valuable antiseptics, many of which, and especially glutol, tannopin, tannoform, helmitol, urotropin, and citerin are given internally for various systemic troubles. Since this chemical action takes place, and the elements necessary for forming these condensation products are found in the average putrescent tooth canal, formaldehyde in some form is indicated.

I do not agree with the methods advocated by some for its use, nor do I approve the technic followed out in the treatment, though favorable results have been obtained. I prefer to use paraform (triformal) or solidified formaldehyde. By its use I can know just the amount that is placed in the tooth and where it is being placed, and can look for and expect certain actions to take place with certain results.

I agree with Dr. Grove, of St. Paul, Minn., that much injury has been done by this powerful agent. I have seen much of the soft tissue between the teeth injured or destroyed by its careless use, for it must not be forgotten that we are dealing with a powerful escharotic. Also, some apical troubles have resulted from its use in root canals. But I sincerely believe these results have been brought about by its abuse and through carelessness.

I do not believe that it is necessary to add any essential oils or anodynes to it. The drug itself is an anodyne and does not depend upon any other drug or agent as an aid to its action. The weeping at the apex of the root or the eczema attendant upon its action on the mucous membranes need not take place unless the technic has been faulty.

I did not start out to write a paper on septic root canals, nor do I intend to give an extended treatise on the pharmacology, materia-medica and therapeutics of formaldehyde. I simply want to say a word in its defence and praise, feeling certain that it is worthy of all the praise that I can give.

As stated before, I prefer the solidified formaldehyde. It is easy to use. You can cut out as much as you desire and place it where you wish with a degree of certainty that the other preparations do not permit; neither do you run the risk of having it leak from the cavity.

Cechnic for Using Formaldehyde. After opening the pulp chamber (if it is not already open) with a spoon excavator, clear it of all decayed matter and flush well with warmwater. Now adjust the rubber dam on two or more teeth, if it is an

approximal cavity, and dry the cavity and pulp chamber well, removing the decay from the gingival seat and walls to admit of perfect sealing with cement. Do not make any attempt to cleanse the canals, nor even enter



them with an instrument; simply place a small piece of the drug, about as much as a pin head for the bicuspids and the anterior teeth and twice that amount for the molars, on the sub-pulpal walls; upon this place a small piece of cotton soaked in cresol. I use cresol, not for any effect that it may possess as an anodyne, but simply as an aid to subsequent treatment. Then seal with cement, making sure there is no leak, especially at the gingival seat.

If this work has been carefully done, no matter how foul or sore the tooth was at the first sitting, when the patient returns several days hence he will tell you, "Doctor within half an hour after I left the office the other day the tooth was comfortable, and has felt fine ever since."

I have used this drug and technic since 1903, and can say that the results obtained have been gratifying to me. I do not think I could record more than four or five per cent. of failures, and these were due to nerosis or absorption of the roots. I have in many cases called the X-ray to my assistance to determine the condition at the apical area, also to verify my work on the root canal fillings. In no case was there any destruction of tissue in the apical area, nor did time develop any untoward symptoms. I am fully aware of the fact that dentists do not always get an opportunity to see their failures. I have been permitted to see enough of my cases to warrant the above statement.

At the second sitting apply the dam and freely open the pulp chamber, if it has not been done before. To your great surprise all the malodor will be absent and you can only detect the cresol. The work of the formaldehyde has been accomplished; you do not need it again for this tooth. Now thoroughly cleanse the canals with the proper instruments, wipe out with alcohol and dry with hot air. Dress the canals and pulp chamber with cresol or campho-phonique, seal with cement and dismiss the patient till the next sitting, when the tooth and canals may be filled, with an assurance of success. In 2exceptional cases I have given the tooth three treatments.

Remember. Canals either chemically or mechanically. 2. Remove with the proper excavators the decay at the gingival seat and other margins. 3. Do not place any of the drug up into the canals; place it over the openings of them, or in the pulp chamber. 4. Seal the cavity as perfectly as is possible with cement, being careful to avoid pressure. If these four instructions are ignored you are liable to have a lame tooth.



Principles in Orthodontia.

By CALVIN S. CASE, M.D., D.D.S.

At the last meeting of the American Society of Orthodontists in August, 1913, there seemed to be a greater willingness than heretofore to throw off the influences which for years have bound them to certain radical teachings, which many are now beginning to see has prevented them from accomplishing the most satisfactory results in practice. I therefore wish to express my unbounded pleasure and appreciation at this trend toward advancement into broader and truer fields of practice.

The members of this Society are, as a class, among the most intelligent and earnest workers found in any department of dentistry. Men whose foremost wish, no doubt, has always been to stand at the very front of modern scientific orthodontia, but whose enthusiasm and insistent zeal for the establishment of certain theories which would be fine if true, has lead them at times to close their eyes to opposing well-established principles of science and clinical results. Fortunately for humanity, the teachings of no guiding spirit of influence, however much revered for the establishment of certain important and undeniable principles of orthodontia, can long prevent men who possess capabilities of individual thought and action from seeing and adopting progressive principles that are daily illustrated and repeatedly confirmed in their own practice. I earnestly believe when the eyes of orthodontia specialists are fully opened to the true possibilities and far-reaching influence of their



chosen field that the world will be more greatly benefitted by the skillful practice of this specialty than from anything which has emanated from the profession of dentistry.

Bodily Movement.

I wisn especially to express my pleasure at the interest and apparent enthusiastic acceptance of that very important principle, the bodily movement of teeth. It matters not to me what methods are em-

ployed to accomplish this result, if they are successful. It would be strange if, after twenty years, some new effective mechanical method radically different from the one in use should not be invented. The great principle and its advantages remain the same, and I hail with delight any method, from whatever source, which will tend to do away with the absurd prejudices, skepticisms and false assumptions which have tended so long to debar a large body of skillful operators from even investigating the truth or falsity of this principle.

It is now over twenty years—at the meetings of the Chicago Dental Society and International Dental Congress in February and August, 1893—since the bodily movement of retruded upper front teeth was recorded. These papers described two cases, commenced at the ages of twelve and thirteen years, fully illustrated with plaster dental and facial casts, showing extensive bodily movements of the roots and crowns of the upper front teeth and alveolar process, and apparently the entire incisive portion of the maxilla, perceptibly changing the shape of the nose, resulting in a decided correction of occlusion and a remarkable beautifying effect to the facial outlines.*

These papers were immediately followed by numerous other papers, read before the most prominent dental societies of the world, illustrative of many similar cases accomplished for patients ranging from ten to twenty-two years of age, a large proportion of which were seen and examined from start to finish by prominent dentists, who vouched for the successes in the most flattering encomiums—all extensively published.

I do not mean by this that the teeth of all these patients were successfully retained in the positions gained. The failures in the early years were largely due to the lack of stable methods of retention. In fact, so prone are teeth whose roots have been moved bodily to partially return to former positions, I have found nothing that will retain them except the apparatus which moved them, or the retainer I now employ, with rigid arms extending back to the molors.** In a number of instances, also,

^{*}See Figs. 38-43, pp. 340 and 345, Dental Orthopedia.

^{**}See Fig. 29, p. 392, Dental Orthopedia.



where cases of this character have been perfectly retained longer than two years they have finally failed because of the strong influence of inheritance.

In an article which I hope to publish soon will be specifically explained, with illustrations, the recent improvements in the form and construction of apparatus for the bodily movement of teeth which I follow in practice, and which, if followed by any skillful orthodontist, will convince him of its simplicity of construction; its ease of adjustment; its scientific application of force; its positiveness of action; its possibilities of distributing the force to the crowns or to the roots; the ease with which any part or parts of the apparatus can be removed separately and reassembled if broken, or bands loosened; and finally, the comparative painlessness of its action and treatment adjustments. In fact, patients complain less of the activities and treatments of this apparatus than any which I employ, it being rarely necessary to do more than the simple turning of the nuts at the anchorage two or three times a week from start to finish of the bodily movements.

Intermaxillary Force.

In all the early papers which introduced the bodily movements of teeth was also introduced the disto-mesial action and advantages of intermaxillary force. Though this principle was ignored by a ma-

jority of orthodontists for ten years, there fortunately arose an opportunity to divert its source for the time being, to a more acceptable channel, resulting in the same enthusiastic acceptance which, I trust, will mark the acceptance and general employment of bodily movements. Through the great possibilities of this principle incalculable benefits have been derived in the past ten years. Its greatest work has been accomplished in the disto-mesial correction of malocclusion of the buccal teeth and in the establishment of that greatest of all principles and advantages, a normal occlusion of dentures, for which too much honor cannot be given to Dr. Edward H. Angle.

Extraction. Steps, brought about largely through the possibilities of the intermaxillary force, that the disgraceful malpractice of needles extraction of teeth in orthodontic operations was exposed and brought to the appreciation of the dental profession. This was also due largely to the teachings of Dr. Angle, in possibly the most effective way, by the assertion that no teeth should ever be extracted in the correction of malocclusions. That the teaching assumed a radicalism that carried it beyond the truth, (1) on the question of extraction; (2) on the absolute need and indispensability of a normal occlusion; and (3) in the widespread assumption that all malocclusions arose from local



causes, cannot be denied from a scientific or clinical standpoint—as all advanced orthodontists must freely acknowledge in the near future.

I was, therefore, more than pleased to learn of the decided stand taken by many upon the great question of extraction in orthodontia. This symptom of departure from the radical teaching of that so-called "basic principle of the new school," I believe, will be remembered in the years to come as one of the great steps in the advancement of this Society—now that its members feel free to think and act in accordance to the dictates and demands of their own practice. One of the progressive members of the Society in the discussion of this subject said he was "glad the bugaboo was at last out of the closet, where it can be looked at and discussed as other subjects are discussed."

Causes. Date the say that in the process of placing this particular bugaboo where it belongs it would be a healthy move to pull its companion bugaboo also out of the closet into the light of scientific investigation and discussion. I refer to the radical teaching that all malocclusion of the teeth, and consequently all malrelations of the dentures which cause facial deformities—excepting "freaks" arise from local causes. The theory of absolute non-extraction in orthodontia is founded upon and partly sustained by this false theory of causes. This theory is distinctly stated in the following words:

"Let us remember that malocclusion of the teeth is always associated with a lack in the growth of bone, or the perverted growth of bone, in degree corresponding exactly with the degree of malocclusion. Nature attempts to build a denture, a face, a skull, and all other parts of the anatomy, to be in accordance throughout with a type she has designed for the individual, but for some reason some of her processes in the building of the different parts may have been interfered with. The result, as we find it, is perversion or arrest in the growth of the alveolar process, iaws and associate bones, and malocclusion."*

If this were true it certainly would be wrong, as the teaching goes, to ever extract teeth. Nothing could be more absurd and behind the times in this day of the quite general acceptance of the principles and teachings of evolution—biology, anthropology and ethnology—as was abundantly shown in the paper and its discussion entitled "The Question of Extraction," presented at the 1911 meeting of the National Dental Association.**

Among the influences that have been freely employed to sustain these two theories relating to causes and extraction is the frequent hurling of

^{*}Angle. The Dental Cosmos, March, 1910.

^{**}Case, The Dental Cosmos, February and March, 1912.



slurs and catch-penny epithets upon every opposing claim. The practice of calling a rare, but very probable, inherited cause an "old saw," and dentures from which teeth have been extracted "mutilated arches," etc., etc., may be a kind of argument which is effective for the time being in swaving certain minds, but how long can it last with unprejudiced minds who have opportunities and capabilities for observing? Old saws at times are sharp saws and continue to saw wood. Yes, unfortunately, there have been and are plenty of mutilated arches, but that is as widely different from this subject as daylight and darkness. I have often wondered if it should ever be found possible to remove one or more vertebrae from a curvatured spine and place the cord back so that it would perform all the functions of health with the entire removal of the "humped back" deformity, if someone would slurringly call the results of that operation a mutilated spine. And yet this and many possible surgical operations which result in the removal of deformities are exactly parallel to the removal of teeth for the correction of facial deformities that cannot possibly be corrected in any other way.

I was pleased to note also that a number of the members of this Society are awaking Diagnosis. to the fact that all malocclusions cannot be successfully diagnosed and treated according to the particular mal-This is a subject which goes hand in occlusion of the dentures. hand with the foregoing errors, and one that refers to that branch of malocclusions whose inharmony, in relation of teeth and jaws, stamp themselves upon the facial outlines. I have written so much in the past years calling attention to the wide difference in character and demands of treatment in cases having the same buccal occlusion I need say no more at this time than to briefly refer: First, to bimaxillary protrusions, which rightfully must be placed in Class I of Angle's-or the dento-occlusal—classification. Notwithstanding the fact that the dentures are in normal, or nearly normal, occlusion, in extreme cases which are not uncommon it is one of the most pronounced of all dento-facial deformities, which cannot be corrected without the extraction of four teeth. Second. I wish particularly to refer to the whole of Class II, one character of which is due to a protrusion of the upper denture and possibly the maxilla, with the lower normal, or nearly so, which cannot be dentofacially corrected without extracting; while another pronounced character is due to retrusion of the lower denture with the upper normal or nearly so, and for which extraction would be decided malpractice. Between these extremes will be found variations which blend into each other with imperceptible gradations. Third, the same character of diagnosis and



treatment applies to Class III, in which, however, there is only one rare type which demands extraction, *i. e.*, decided protrusions of the lower denture.

It was with the hope of more sharply calling attention to the decided differences and demands of extremes in Class II that lead me in my classification

to divide this malocclusion into two classes, but which I now believe might have been quite as well, if not better, accomplished upon the basis of a dento-occlusal classification, showing the same distinctive types and treatment which I have heretofore published. Because of the quite general acceptance of the Angle classification, and because of that most desired of all objects, a unification of nomenclature and teaching principles, in the next edition of Dental Orthopedia, which I am now preparing, all malocclusions of the teeth will be placed in three classes, on the basis of a dental-occlusal classification. It will be quite widely different from Dr. Angle's classification, inasmuch as all distinctive characters of dento-facial malocclusions will be defined and treated as heretofore, and when systematically arranged with their distinctive divisions and types in three classes on the basis of their buccal occlusion, I trust it will enable me to bring about a more intelligent appreciation of the principles which I have for many years striven to establish.

The principal object of a classification of malocclusions is to aid in teaching, and to enable a more perfect understanding of differential diagnosis. The mere statement of the class in which a certain malocclusion belongs tells little or nothing of the actual conditions that exist or the special treatment demanded. When employed otherwise it is very liable to be quite misleading. The principal objection which I have urged to the Angle classification is, that through it and the teaching many orthodontists have been led to believe that all malocclusions which have the same occlusion of the dentures should be treated alike, whereas they may be so widely different from each other, when dento-facially considered, that they frequently demand diametrical treatment.

There are several important principles of applying force which I hope to see more generally employed the united acceptance of which has been largely retarded through the influence of commercial advantages and the difficulties of individual construction. One of these is the incalculable advantage of "Stationary Anchorages"—first presented at the meeting of the American Dental Society in 1897—consisting of wide No. 35 or No. 36 bands perfectly contoured and fitted to two or more buccal teeth, and firmly soldered together, bearing long, rigidly attached tubes for pull or push screw arch bows or bars. No single molar band, however



tightly it may be screwed around a tooth, possesses stationary qualities compared to this, and especially not if they are not composed of heavy bands perfectly fitted from the gingival to the occlusal borders, with long bearing tubes attached rigidly at or rootwise to the gingival borders. Single molar clamp band anchorages of the common commercial type are what I would regard as "movable anchorages." A movable anchorage is quite as important when demanded, as a stationary anchorage, but the two forms are as widely different in their needs and activities as other torms of anchorages.*

Another important principle which I hope to see more extensively employed is the application of force at points rootwise to the gingival margins, accomplished principally by means of rigid bars or plates firmly soldered to heavy long-bearing bands, stationary anchorages, etc., and shaped to lie over the gum labially, bucally or lingually, carrying force attachments for bars, bows or elastics. By this means the force may be distributed to the entire root or roots, proportionately increasing its stationary quality, or of producing when desired a bodily movement by greatly increasing the mechanical advantage over applying the force at points upon the crowns.**

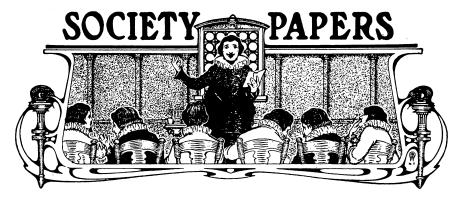
There are many valuable and effective methods for the movement and retention of teeth that have been almost wholly or quite neglected by a large proportion of orthodontists because of the difficulties of construction, and because also of the habit of relying solely upon purchasable appliances. If they would allow themselves to become fully acquainted in practice with many well-established methods which they have never tried or else have imperfectly tried, I am confident they would be surprised and pleased with the ease, comfort, effectiveness and rapidity of their operations.

American Society of Orthodontists

The discussion of Dr. Young's paper, scheduled for this issue, is unavoidably omitted, in consequence of a misadventure in the preparation of the illustrations. It will appear in our next number.

^{*}See Dental Orthopedia, Figs. 63 and 64, p. 240.

^{**}See Dental Orthopedia, Fig. 56, p. 355.



The Scientific Administration of Nitrous Oxid and Oxygen.

By Dr. A. E. Smith, Cleveland, Ohio.

Read before the New Jersey State Dental Society at Asbury Park, July, 1913.

From scientific statistics derived from the conclusion of the leading anesthetic authorities in the world, it has been conceded that nitrous oxid and oxygen occupies the foremost position of all anesthetics known to science.

The chemical nature of nitrous oxid and oxygen and its effects alone verifies the above opinion for the following reasons:

- 1st. That it is composed of elements, the therapeutic properties of which are harmless upon the organic composition of the human body, when properly administered and the underlying fundamental principles of this method of anesthesia are skilfully carried out.
- 2d. The early and careful recognition of the premonitory symptoms manifested by patients under its influence is imperative, because of the rapid therapeutic action of these two gases, within the human body.
- 3d. The fact that it is almost free of post anesthetic effects, warrants its adoption when all other general anesthetics are contra-indicated.

The discovery of the anesthetic properties of N₂O and its practical application to dental surgery must always stand as one of the great achievements of the dental profession. The art, and it is a great art, of administering anethetics, has made great progress during the last few years. The time is rapidly passing for the surgeon to pick up "anyone" to give the anesthetic.

Anesthesia is a science, a great study and has gained a level that it rightfully deserves. Did you ever stop to think of the great advance-

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ment that has been made in diagnostic and operative technique? The advancement is great and the modern surgeon of to-day can, in most cases, give the prognosis of his case to a certainty, barring that of the anesthetic.

During the past few years the administration of nitrous oxid and oxygen as an anesthetic has made a wonderful advance, and is receiving more attention than any other specialty in the whole realm of general and dental surgery. Nitrous oxid and oxygen is in a class by itself, and when it is administered by one who is skilled in its use, the death rate is practically nil for any class of work. This anesthetic is backed by science, and stands without a peer, and above all, it is indorsed by some of the greatest surgeons in the medical profession. It has stood crucial tests and has fulfilled the requirements as to superiority.

There is no question but that nitrous oxid and oxygen is by far the most difficult anesthetic to administer properly, and unless the proper technique is carried out, good results cannot be obtained. We must remember there are two extremes, two ends to the scale, and we must avoid both, by steering in a middle course, recognizing premonitory symptoms manifested by the patient in order to produce and obtain an even narcosis. The fundamental principles of this mode of anesthesia must be thoroughly understood, and the anesthetist must, by all means, know the definite action of these two gases.

It has been my privilege to administer this anesthetic several thousand times for major and minor surgery for various surgeons in all parts of the country, for practically every kind of an operation to its completion, varying in time from a few minutes to two hours and forty minutes. From the vast clinic work carried on before the medical and dental professions, it enables me to cite numerous cases of interest, and I will give the following ones, viz.:

Cases from Practice. Angus McLean. Patient, male, age 31. Occupation, physician. The doctor was in very good physical condition, although he had had several attacks of appendicitis. After observing my anesthetic work in several other cases for the surgeons, he asked me if I would give him the anesthetic the following day, for the removal of his appendix. I started the administration at 9.30 and at 9.33 the incision was made. At 9.46 the operation was ended, only eleven minutes having been required for the operation and the remaining five minutes for the induction and the elimination of the gases. When the doctor regained consciousness, he was surprised when told the short period of time he had been on the operating table.



His pulse at no time was over 84, and the respiration ranged from sixteen to twenty per minute. Not one drop of ether was used.

Lebanon Hospital, New York City. Operation, gase 2. appendicitis. Patient, female; age, 28 years. Surgeons, Drs. Kokels and Hyman. This patient was not a good subject for any anesthetic, due to her physical condition. Her weight was 218 pounds. The abdominal wall was very thick and much fat was present. The appendix was bound down by numerous adhesions. Complete surgical relaxation was obtained in six minutes. The patient passed off into a quiet anesthesia with no resistance. Pulse ranged from 80 to 130 throughout the operation. Oxygen administered was from 10 to 14 per cent. Operation continued for fifty-five minutes. Patient was conscious within four minutes. No nausea.

Massachusetts General Hospital, Boston, Mass.

Case 3. Operation, stricture of rectum. Patient, female; age, 42 years. Anesthesia produced in three minutes with surgical relaxation. Pulse ranged from 72 to 84 throughout the anesthetic. Respiration, 18 to 22. Oxygen, 10 to 14 per cent. This case is mentioned to show that surgical relaxation can be obtained without the use of ether, even in rectum cases. Patient was conscious before leaving the table. No nausea.

Maine General Hospital, Portland, Maine. Operation, appendectomy and double salpinjectomy. Surgeons Drs. Leighton and Davis. The condition of this patient was very poor, due to the accumulation of pus in the abdominal cavity. She was an excellent subject for N₂O and O anesthesia, due to the fact that the anesthetic would not cause a lowering of her immunity to combat the infection. Had ether been administered, it would have had its detrimental effect upon the leucocytes and kidneys, and it is self-evident her chance for recovery would have been lessened. It has been proven that N₂O and O has no such detrimental effects. Anesthesia was produced in four minutes. Operation lasted fifty minutes. Recovery, four minutes. Oxygen, 10 to 15 per cent. Respiration, 18 to 22. Patient removed to her room resting comfortably.

St. Bartholomew's Clinic, New York City.

Surgeons, Drs. Alexander and Geringer. Operations, on seven children for removal of tonsils and adenoids. I administered N₂O and O to seven children by nasal inhalation. Ages four to twelve years. These seven children were operated upon, including the period of induction and elimination of the anesthetic in 56 minutes. Not one patient was nauseated.



City Hospital, Newark, N. J. Surgeon, Dr. O'Crawley. Operation, prostatectomy; age, 70 years. N₂O and O was the ideal anesthetic for this case. Pulse ranged from 80 to 96. Respiration, 18 to 22. Blood pressure was taken every few minutes, which ranged from 86 to 126. High blood pressure could not be tolerated in a case of this kind, taking into consideration the age of the patient. The period of induction was seven minutes. Duration of operation, 48 minutes. Recovery, four and one-half minutes. No nausea.

New York City. Nature of operation, dental.

Case 7. Dentist, Dr. B. R. Perkins. Patient, female; age,
32 years. We went to the home of the patient, found
her suffering severely from a lower third molar, and the roots of the
lower second molar. The patient was yet confined to her bed, having
given birth to a baby eight days before. Her jaws were completely
closed, due to the intense swelling.

The gums and surrounding tissue, intensely swollen and full of pus. Patient was on liquid food for three days. Anesthesia was produced in three minutes. Patient passed off into a quiet and profound anesthesia on ninety parts N₂O and ten parts oxygen. Her jaws were forced open and the teeth removed, also considerable pus. Consciousness was regained in two minutes. No nausea.

Time will not permit me to cite numerous other cases, which no doubt would be instructive to those interested in anesthesia.

Physiological Action of Nitrous Oxid and Oxygen Upon the Brain and System.

It is a recognized fact that nitrous oxid and oxygen produces the least detrimental effects upon the human organism. Much credit is due the research workers for bringing this anesthetic from obscurity to the place which it is enjoying to-day. The inhaling of nitrous oxid and oxygen in the proper proportions is accompanied by no unpleasant sensations, and the patient is hardly aware that he is inhaling an anesthetic, and is soon plunged into a deep surgical sleep. Its absolute action upon the brain cells has never been fully determined, but several theories have been advanced as to the probable cause of it producing anesthesia. The most plausible theory, however, is that it has a direct chemical action upon the brain cells. The nitrous oxid molecules have the power to physically combine with the brain constituents, and probably at the same time cause a deficient amount of oxygen in the brain cells, and as a result the stage of analgesia and anesthesia is produced, and the depth of various stages varies as to the quantity of nitrous oxid administered.



We positively know that the gases are diffused through the air cells of the lungs, is taken up by the blood, and distributed by the blood constituents, which carries the anesthetic to the various nerve centers of the brain, thereby producing anesthesia. According to Hare, it produces anesthesia by direct action on the cerebral cortex, though when given pure the anoxemia is probably a contributary factor.

Nitrous oxid and oxygen is absorbed by the blood very rapidly, and when inhaled by the patient, it immediately comes in contact with the acini air cells. The lung tissue may be considered as consisting of aeriform matter separated from the blood by an exceedingly tenuous membrane which has the power to allow the rapid interchange of the gases to and from the blood. When the nitrous oxid comes in contact with the lung tissue, it is immediately diffused into the blood. The blood takes up the anesthetic, which is held in a loose chemical combination by the hemoglobin, and is carried to the brain cells in order to bring about surgical anesthesia. If the proper proportion of oxygen is used, the brain will remain almost normal in color, but if a deficient quantity of oxygen is given, the brain will at once lose its natural pink color, and will be dilated. As soon as oxygen is admitted in the proper proportion it will again resume its natural color, and the dilation will disappear. The dilation is concomitant with the discoloration, and if too much oxygen is removed from the combination, deep cyanosis will appear. The dilation is caused by the increased blood pressure, and should be avoided especially in cases where high blood pressure is contra-indicated.

It has been my pleasure to anesthetize a large number of patients for serious brain operations, and many of them have been cases in which other general anesthetics were strongly contra-indicated, and the results obtained have been gratifying to the surgeon as well as promising a good prognosis for the patient.

Brain Operations Under Nitrous Oxid and Oxygen.

One of the most interesting brain cases that I ever had, was with Dr. Wayne Babcock, Good Samaritan Hospital, Philadelphia, Pa. The patient was anesthetized with nitrous oxid-oxygen before my first Philadelphia class and it was of great inter-

est to all who witnessed it. The operation was on a lad eighteen years of age, who was an epileptic, and the nature of the operation was for the removal of tension upon the brain. The Cryer surgical engine was used, and a segment of the parietal bone was removed which measured several square inches. The administration continued for one hour and five minutes, and the patient was talking to me a few moments after the anesthetic was discontinued.



Another brain operation of interest was performed at Franklin Hospital, Franklin, Pa. It was on a woman of middle age, who was in poor physical condition. An opening was made in the brain, through the mastoid cells and considerable pus was removed. Length of anesthesia was 65 minutes, patient regained consciousness within a few minutes after the operation. No nausea. Excellent pulse.

Asphyxiation. The asphyxial phenomena may enter into any anesthesia, no matter whether the anesthetic employed be ether, chloroform, or nitrous oxid. It is self-evident that asphyxia is more apt to accompany nitrous oxid, than any other anesthetic, from the fact that it must be administered from 80 to 95 per cent. pure. The asphyxia that sometimes accompanies nitrous oxid-oxygen anesthesia is not dangerous, however, as compared with the asphyxia produced by chloroform or ether. Nitrous oxid administered with air or pure is not a good anesthetic for brain surgery, but when it is given with pure oxygen, in the proper percentage, thus maintaining a good color of the patient, it is an excellent and safe anesthetic in brain surgery.

It has been proven by research workers that nitrous oxid and oxygen has no direct effect upon the heart and vaso-motor system, the rise of arterial pressure, being brought about by slight inter-current asphyxia. The research workers that deserve much credit for this wonderful work are Drs. Teter, Gatch, Murphy, Gwathmey, Parker, Hewitt, Bevan, Hamburger and Ewing.

Comparison of Uarious Anesthetics.

Drs. Ewing and Hamburger report as follows for ether anesthesia: Color index shows a rather constant drop, starting immediately after anesthesia and reaching its lowest point on the fifth and sixth days. This would indicate a loss of hemoglobin per

cell, and is unlike nitrous oxid results, in which the only sign of a lower color index is found immediately after the anesthetic mask is removed, and is completely gone within two hours. The ether volume index likewise shows an immediate loss of hemoglobin, which is most marked in twenty-four hours, and again on the fifth and seventh days. In the nitrous oxid reading the percentage volume remains unchanged throughout. It has also been proven that nitrous oxid and oxygen has no effect whatever upon the liver and kidneys.

The toxemia of infection is increased by ether anesthesia, which results in a loss of the antibodies or ferments of the blood, resulting in a diminished resistance to the blood cells, that combat infection. The functional activity of the leukocytes thus being impeded, it lessens the



patient's resistance, which in many cases would make a very grave prognosis for the patient.

As to the comparative merits of nitrous oxid, chloroform, and ether narcosis, the American Medical Association, reports that "as a routine anesthetic, nitrous oxid and oxygen has a peculiar value, and in the hands of skilled anesthetists the method is the best yet devised."

Dr. C. B. Parker, an eminent surgeon of Cleveland, Ohio, who used nitrous oxid and oxygen a number of years, in his routine surgical work, reports a number of cases in nitrous oxid-oxygen anesthesia which were unfavorable for any other anesthetic. Among them were patients suffering from organic diseases of the heart, kidneys, and lungs, wasting and suppurative conditions, diabetes, empyema, asthma, alcoholism, also the young and old patients of greatly overweight; those who had developed alarming symptoms in the previous taking of ether or chloroform, and those who had experienced the distress of previous etherization. Many years ago Dr. Parker came to the conclusion that nitrous oxid and oxygen was safer and more agreeable, and he is, therefore, using it exclusively in his work in Cleveland to-day.

Dr. Crile says, "In the so-called 'border land' cases, of grave infection and operations on the very ill, the consensus of opinion seems to be that nitrous oxid and oxygen gives the patient a better chance to live, and is often the hinge by which an ebbing life may turn. In the inevitably fatal cases, no patient shows the rapid march to fatality immediately following the operation, which occasionally follows ether."

Dr. Hewitt, of London, says, "There is no form of anesthesia at present known, which is so devoid of danger as that which results from nitrous oxid when administered with a sufficient percentage of oxygen to prevent asphyxia or asphyxial complications."

Time will not permit me to cite other authorities on this work, but undoubtedly you will agree with me that, when nitrous oxid and oxygen has such a gratifying record as to its effect upon the human organism, it should be the anesthetic of choice, and stand par excellence in the medical and dental professions, and from the very fact that we are called upon to administer nitrous oxid and oxygen where chloroform and ether are contraindicated. We know that ether is an irritant to the mucous membrane and the respiratory tract, as well as to the bladder and kidneys, and when it is administered to a patient suffering from inflammation of these tissues, we are only adding fuel to the flames.

Requirements Chat Are Absolutely necessary for Producing and Maintaining Nitrous Oxid and Oxygen Anesthesia.

There are six things that are imperative for the anesthetist to master in order to obtain satisfactory results.



First.

A thorough knowledge of the anesthetic and a mastery of the fundamental principles involved in its administration.

Second, Pure Gases It is imperative that pure gases be used, especially when we have the life of a patient involved, and not only that, but in order to maintain a satisfactory anesthesia. A good anesthesia cannot be

produced from impure gases, and the use of such gases would only be inviting trouble, which no doubt, would occur.

An even and constant flow of the gases, whereby an even narcosis may be maintained. An uneven flow of the gases produces an uneven anesthesia, and increases nausea. If an even and constant flow is maintained, the patient can be easily carried to the proper depth of anesthesia and this condition maintained for any length of time. As soon as I ascertain the proper percentages of the nitrous oxid and oxygen that my patient requires to keep him surgically anesthetized, I have in many cases not touched my apparatus for thirty minutes. This proves the advantage of an even and constant flow of the gases, which could not be accomplished execpt through the use of regulators.

Fourth, Redreathing. Rebreathing is almost imperative, not only in making the anesthetic safer, but in creating carbondioxid, which has been proven to be of great value as a respiratory stimulant. The amount of re-

breathing is governed by the amount of fresh nitrous oxid allowed to enter the bag, and the amount of positive pressure that is used; also the symptoms displayed by the patient. It has been proven that certain percentages of carbon-dioxid is a respiratory stimulant, but if too much is employed carbon-dioxid asphyxiation will result. The advantages of rebreathing are two in number:

1st. It makes the anesthetic less expensive.

2d. It makes a better anesthetic from the fact that the carbon-dioxid which is formed by rebreathing, acts as a stimulant on the respiratory center, which results in a better anesthesia throughout the operation.

As above stated, if too much rebreathing is employed, which is governed by the amount of fresh gas that is allowed to flow into the bag and the amount of pressure, the patient will develop symptoms of carbon-dioxid asphyxiation. I find that many of the members of my various classes have considerable trouble in differentiating between carbon-dioxid asphyxia and nitrous oxid asphyxia. However, in some cases



it is somewhat difficult to diagnose the symptoms manifested by the patient at their on-set.

One should be thoroughly familiar with the symptoms manifested during these two conditions in order to know how to adjust the gases as soon as these symptoms present. If one is not familiar with the symptoms, he may do the wrong thing at the critical moment thus causing an alarming condition of his patient.

The proper amount of rebreathing must be governed by the symptoms displayed by each individual patient. Every case is a case within itself, and the anesthetist must be his own judge as to how much rebreathing to employ. Take a frail, anemic patient, for instance; you will find he will tolerate an exceptional amount of rebreathing. If the carbon-dioxid is of too high percentage, the patient will manifest forced respiration, which will be followed by perspiring, slowing of the pulse, and livid appearance, ending in cessation of respiration. above-mentioned symptoms appear, the anesthetist must be capable of meeting the condition without delay. If the oxygen is increased to prevent excessive formation of carbon-dioxid, the anesthesia will at once become light in character. This is what the inexperienced anesthetist will do, and as a result, the anesthesia will be so light—it will interfere with the operation. The proper thing to do, is to add oxygen to prevent the excessive amount of carbon-dioxid, and at the same time fresh nitrous oxid must enter the bag in order to supply the patient with the proper volume to maintain surgical anesthesia.

You must remember that there is practically no pure nitrous oxid in the bag; what the bag contains has been rebreathed several times by the patient and mixed with carbon-dioxid. This being the case, you will readily see that there is no pure nitrous oxid in the bag to keep the patient anesthetized.

A robust, muscular patient will tolerate only a small amount of rebreathing as compared with a delicate patient. No set rules can be laid down as to the exact amount of rebreathing and carbon-dioxid which may be employed. Personally, I maintain surgical anesthesia, employing rebreathing and positive pressure at an approximate cost of \$1.25 per hour, and for the same length of time if rebreathing and positive pressure were not used it would probably cost \$4 or \$5 per hour.

Positive pressure is another essential requirement. Positive pressure is where the gases are given under pressure in order to force the lungs to absorb more of the anesthetic mixture, which results in a deeper narcosis. This is called positive interpulmonary pressure, and is accomplished by the



use of a sliding collar which rests upon the respiratory disc in the inhaler. The amount of positive pressure required will vary from four to forty millimeters of mercury, and must be governed by the symptoms displayed by the patient.

It is a well-known fact, that if the gases be given under pressure, a greater amount will enter the blood stream, which will in turn be carried to the brain, and a deeper narcosis will follow. I have demonstrated this feature a number of times to the various surgeons, with whom I have been in clinics, in the hospitals, by taking the pressure off the respiratory valve, allowing the gases to come out from under positive pressure, thus maintaining atmospheric pressure, and we at once observed a light anesthesia, due to the fact that not so much of the anesthetic was taken up by the blood and carried to the brain. As soon as the sliding collar was forced down the proper distance, a deep narcosis was the result, without adjusting the flow of either the nitrous oxid or the oxygen.

This alone proves the value of positive pressure, which can be readily adjusted for any patient, upon whom nitrous oxid and oxygen is employed. It is reasonable to think that when the gases are delivered to the lungs under pressure a greater amount will be absorbed, thus producing a deeper anesthesia than would be possible to secure with the gases being administered under ordinary atmospheric pressure. It is not necessary to add a small percentage of ether to more than ten per cent. of the cases for major surgery, when the gases are given in this manner. Complete surgical relaxation can be maintained in at least ninety per cent. of the cases with pure N_2O and O.

Rebreathing of the gases cannot be employed to any great degree for dental operations, due to the fact that pressure must be used when the nasal inhaler is employed, in order to force the anesthetic mixture to the patient's lungs, to maintain a prolonged anesthesia. Positive pressure and rebreathing can be utilized for dental operations to a great advantage with the nasal inhaler, while the patient's mouth is covered with the rubber to prevent mouth breathing, until complete surgical anesthesia is obtained. As soon as this occurs, the rubber is removed from the mouth and rebreathing and positive pressure is lost at once. due to the fact that the patient will breathe through the opening of least resistance, which is the mouth. Now it is necessary to increase the pressure in the bags to an amount over atmospheric pressure. exact pressure will vary as to the resistance displayed by the individual patient, to prevent mouth breathing. Please understand that there is a great difference between positive pressure, plus rebreathing and the pressure that has to be maintained when the nasal inhaler is employed with



the patient's mouth open, in order to prolong the anesthetic for an indefinite time.

Positive pressure is used with rebreathing, and this can only be employed during the stage of induction for dental operations, and after the induction stage a pressure must be used above the atmospheric pressure.

Sixth, Warm Gases. Warm gases are imperative in all classes of work for the best results. We must remember that the nitrous oxid in the cylinder is in a liquid state, and when the pressure is released, it rapidly trans-

forms to a gas, thus becoming very low in temperature. It stands to reason that the temperature should be increased to near that of the body, before it is inhaled by the patient.

When the gas is warm, the irritating properties, due to its extreme low temperature, which is produced by the rapid physical change from the liquid to the gaseous state, is thereby removed. Warm gas removes the chance of post-operative bronchitis and pneumonia and a much deeper and more tranquil anesthesia is obtained. When we consider the delicacy of the mucous membrane lining the lungs and respiratory tracts, I think you will agree with me that it is not a good idea to subject these delicate tissues to an agent that is much lower in temperature than the tissues themselves.

It is not necessary to have the gases a certain temperature other than near the body temperature. Approximately 90 degrees F. is ideal to use during the administration. I have come in contact with several men over the country who ridicule the idea of a vapor warmer, saying it was not necessary, and, therefore, that they did not believe in its use. I wish to say that, personally, I would not use nitrous oxid and oxygen in any class of work without using a vapor warmer, for I desire to obtain the best results, and at the same time eliminate the dangers that might arise from administering cold gases.

In several hospitals I have observed the anesthetist using warm ether, during an ether administration, and it stands to reason if ether should be warm for the best results, that nitrous oxid should be warm. I positively know that I get better results, both in anesthesia and analgesia, and that is what I am striving for—"Results."

During the stage of analgesia, it makes it more pleasant for the patient and a deeper analgesic stage can be maintained. Not long ago it was my privilege to give the anesthetic during a major operation to a patient who was suffering at the same time from a slight attack of pneumonia, and there was considerable improvement in the condition of



the patient's lungs after the operation, which no doubt was due to the breathing of the warm gases.

Advantages of Nitrous Oxid and Oxygen Anesthesia.

The advantages of this anesthetic over other general anesthetics are many. There are no prominent or surgically significant changes produced with nitrous oxid and oxygen, as with ether or chloroform, which produces anemia, as well as hemolysis, and a lowering of the patient's vitality.

It has been proven that a patient, who has been anesthetized with nitrous oxid and oxygen, and is suffering from a severe infectious disease, is better enabled to combat the disease than the patient who has been anesthetized with ether, from the very fact that N₂O and O has no action upon the leucocytes which combat infection. Is it not true that the chance to live is greater, and the convalescing period is shortened, when no detrimental effects have occurred from the anesthetic? Patients who have been given pure nitrous oxid will show an increase in respiration, and if no air or oxygen be given, the respiration will become depressed, and finally cease from muscular spasm. These phenomena are purely asphyxial, and when oxygen is added, may be avoided.

Slight cyanosis is often present with deep nitrous oxid and oxygen anesthesia, but has no significance, and therefore, may be disregarded, provided the patient has no pathological conditions, which would contraindicate any rise of blood pressure. However, cyanosis must not be permitted for any length of time.

I will endeavor to enumerate the many advantages of nitrous oxidoxygen anesthesia:

Comfort of the patient during the period of induction and elimination, plus the absence of post-anesthetic vomiting. The patient passes quickly and very quietly into deep anesthesia, and in the majority of cases, surgical anesthesia may be induced within three minutes.

Second.

It has practically no odor, and when administered to the patient warm, with oxygen in the proper percentage, the patient is hardly aware that he is taking an anesthetic, especially if he has ever taken ether or chloroform.

Chird. Nausea rarely occurs when there are no other nausea-producing factors.

Fourth. It is not irritating to the respiratory passages nor to the kidneys.



Sixth.

Seventh.

It does not cause fatty degeneration of the liver cells, and has no effect upon the lungs, provided it is administered warm.

It does not produce any harmful effects upon the phagocytes, and is therefore indicated in infections.

The patient is fully awake and in possession of his mental faculties within a few minutes after the anesthetic mask is removed.

Subsequent administrations have, as a rule, no harmful effects.

Its administration is indicated on patients suffering from infectious diseases, and those having a low resisting power.

Its rapid elimination from the system, and the rôle of shock is far less than that of ether or chloroform.

The patient is plunged into a deep surgical anesthesia, within a few minutes, passing through the stage of excitement very quickly.

Cwelfth. It does not produce an accumulation of mucous and saliva.

Disadvantages of Nitrous Oxid-Oxygen Anesthesia.

You will note that the disadvantages connected with this mode of anesthesia are harmless to the patient, but may be otherwise to the surgeon and the anesthetist. This, however, should be of minor importance, for I think the aim of the modern surgeon is to record a successful operation.

The disadvantages of this anesthetic are very few, in the hands of the highly skilled anesthetist, and they should be looked upon by the modern surgeon, not only from a scientific point of view, but from the patient's standpoint and that of a good prognosis. They may be enumerated as follows:

It requires a trained expert who fully understands the action of the two gases, the symptoms of the patient, the fundamental principles of anesthesia, and the minute adjustment of the apparatus, to obtain the best results.

Second. Deep relaxation in some cases is not easily produced.

Third. It requires an expensive and accurate apparatus for its scientific administration, and one that is equipped with an ether attachment, in which accurate percentages of ether may be given if occasion demands it.



The anesthesia is somewhat lighter and more transient than that produced by chloroform or ether.

Fifth. It requires much watchfulness and skill on the part of the administrator to produce an even narcosis.

Narrow zone of anesthesia, with consequent uncertainty of muscular relaxation and freedom from reflex movements. This, however, can be overcome

in most cases by the skilled anesthetist, if he understands positive pressure and rebreathing.

Contra Indications of Nitrous Oxid-Oxygen Anesthesia.

Contra-indications for this mode of anesthesia are, indeed, very few in number, especially when it is administered by one skilled in its use. It is, indeed, very gratifying that the contra-indications are so few in number, and even these can in most cases be handled by the expert anesthetist by adding a very small percentage of ether to the combination, which will have its effect in producing satisfactory relaxation and deeper anesthesia. This will eliminate any cyanosis and high blood pressure, which might be present in producing a satisfactory stage of anesthesia, and thus endanger the life of the patient.

When we take into consideration its asphyxial tendencies, with consequent venous congestion, increased blood pressure, and muscular spasms, nitrous oxid-oxygen should be administered with the greatest caution if there is any obstruction in the air passages caused by hypertrophied tonsils, goiter, in cases of myocardial or valvular disease, emphysematous lungs, and in very young children. It is also contra-indicated in individuals who possess aneurism, or an advanced stage of arterio-sclerosis. Patients who present a feeble first sound of the heart should make us more careful in its use. Cardiac dilatation, with or without a valvular lesion, as well as aortic regurgitation are conditions that we must be most careful of, as we must beware of producing an increased arterial pressure. If you employ N₂O and O in these cases, do so only with the greatest caution.

The cases that we must handle with the highest professional skill, are those which possess a high blood pressure, from the fact that nitrous oxid and oxygen increases the blood pressure about ten to twenty millimetres with the average case. Then, if we anesthetize a patient who is suffering from some disease which causes a high blood pressure the anesthetic may further increase the blood pressure to a dangerous point.

Other conditions in which a high blood pressure is often found, are chronic myocarditis, the complications of arterio-sclerosis, such as



angina pectoris, and apoplexy, also euremia, septicemia, the toxemia of pregnancy, peritonitis, and cerebro spinal meningitis.

When I am called upon to give an anesthetic to a patient suffering from any disease that causes an extremely high blood pressure, I employ the sphygmomanometer, thus ascertaining the blood pressure of my patient at the start of the anesthetic, and I take the blood pressure every few minutes throughout the operation.

If the blood pressure increases to a point in which it is not safe to continue the use of pure nitrous oxid and oxygen, I then admit a small percentage of ether, which acts as a respiratory stimulant, and at the same time I'am enabled to keep the patient perfectly normal in color, with practically no rise in the blood pressure from the beginning. In these cases I have found it much safer to add a small percentage of ether for a few inhalations, say 3 to 5 per cent. to the nitrous oxid-oxygen combination, than it is to administer nitrous oxid and oxygen alone and cause increased blood pressure. It might not be possible to obtain a satisfactory anesthesia, unless the nitrous oxid is administered in a percentage that will produce a deep surgical anesthetic stage accompanied by cyanosis, followed by a high blood pressure, due to the physiological action of the nitrous oxid. If ether is admitted more oxygen can be given, thus keeping the patient perfectly normal in color; the cyanosis will be eliminated and a fall of blood pressure follows.

We must bear in mind that the deeper the cyanosis, the higher the blood pressure, and that the addition of oxygen lowers the blood pressure.

The above-mentioned cases must be handled with the greatest of precaution, and the use of the sphygmomanometer, designed by Dr. Faught, of Philadelphia, cannot be overestimated in determining the danger point. As a rule, a child of only a few years of age is not a good subject for nitrous oxid and oxygen. Children are subjects who are hyper-susceptible to both nitrous oxid and oxygen. In other words, they are easily asphyxiated even from a small quantity of nitrous oxid and they readily respond to an over-dose of oxygen, thus bringing them out of the anesthetic.

The dividing line between the two in which surgical anesthesia prevails, is indeed a very narrow one, and unless the anesthetic margin is maintained with the greatest precaution, respiration may be arrested.

Analgesia.

The progress of the dental profession has been wonderful during the past ten years. There is no profession in existence to-day that can show such a stride in rapid advancement as ours. It is very gratifying. I know, to every member of our profession, to see what has been accomplished in research work in dentistry in all its phases. Scientific methods



have been most carefully worked out in nearly every branch of our work.

Success awaits with beckoning hands every progressive dentist who wants to obtain it, reach the goal, and enjoy a profitable practice. I am frank in making this statement, that there has been no discovery nor method used in the practice of dentistry for the purpose of enabling us to do better work, with the elimination of pain, resulting in satisfied patients, so important as that accomplished through the medium of analgesia. To my mind it is the greatest discovery up to the present day, and the proof of the above statement is manifested by the thousands of satisfied enthusiastic patients, who have been operated upon by this harmless method, and who go on their way rejoicing and praising the dentist who did their work for them.

Permit me to make another statement, if you will, and it is this: The dentist who familiarizes himself and becomes proficient with the fundamental principles involved in the scientific administration of the gases in producing and maintaining analgesia, and who also gives his patients the benefit of this modern treatment, is the dentist that will make good his work will be a pleasure—his patients will wag their tongues in his favor, and his financial returns will be greater, which will swell his bank account. In summing up the above statement I wish to prove the following points: Did you ever have a patient that enjoyed pain? No, I should say not! Then treatment with pain eliminated will please the patient, and he will tell others. You are enabled to render your patients a higher professional service, when there is no pain, for you are not handicapped in your procedures. You certainly will agree with me that it is possible to do more efficient work, resulting in better cavity preparation to receive your fillings, which means longer life for them. The fillings will stand up under the stress of mastication much longer, when placed in cavities, which have been prepared along scientific lines, than in those half prepared, due to the patient's resistance caused by the pain inflicted.

When good professional services have been rendered to patients, with pain eliminated, an increased practice and increased financial returns will necessarily follow. Especially the latter appeals to every dentist. His practice may be as large as he desires, but the increased financial returns meet his approval.

The research workers have made "painless dentistry" a reality by the scientific use of nitrous oxid and oxygen. Science has taught us that it numbs the afferent nerves which carry the message of pain to the brain cells, when the tooth structure is being hurt, and such pain can be eliminated through the medium of analgesia. I am enthusiastic when I



realize this, and words cannot express my feelings when I think of its possibilities and its unlimited usefulness in our professional work.

Only a few inhalations of the right percentages of the gases and air are necessary to bring about the stage or conditions that makes it possible to work upon our patients. Yet, they are completely insensible to pain and remain in the dental chair wholly conscious. Think it over! Does it not mean something to every dentist who has his patient's welfare at heart, as well as his reputation?

The Effect Upon the Brain by Nitrous Oxid-Oxygen During Analgesia.

Nitrous oxid-oxygen, administered to an individual in a dose required to produce the analgesic stage, has the power to numb the sensory nerve centers in the brain. These nerve centers govern the sense of pain. They are rendered insensible to pain through the action of the nitrous oxid, thus eliminating the pain caused by the irritation at the peripherial nerve endings.

No doubt nitrous oxid and oxygen produces the stage of analgesia in the same way as it is thought to produce surgical anesthesia, namely, that it has a direct physical chemical effect upon the brain cells. The physical change that takes place between the brain cells and the anesthetic is not as great during analgesia as that of anesthesia. The depth of the analgesic stage varies as to the dose of anesthetic given, and the unskilled operator will find some difficulty in maintaining the true analgesic state which rests upon such a narrow margin. It is indeed a very narrow margin, and we must steer a middle course, which separates the stage of excitement and the abolition of the pain sense.

From experience I have found that the dental fibrillæ in the dentine and the odontoblasts lining the pulp chamber lose their power for transmitting impulses of pain much more quickly than the sensory nerves in the skin.

Pain caused by cutting sensitive tooth structure, is quite different from the pain inflicted upon sensory nerves in other parts of the body. This can be accounted for because the fibrillæ in the dentine is not real nerve tissue. Many patients can be placed in the analgesic condition and a tooth excavated or hyper-sensitive dentine cut with a bur absolutely painlessly, while the patient in the same state and under the same conditions, can feel pain when pinched upon the skin. It is therefore proven to us that the sensory nerves in the skin lose their power of transmitting pain impulses after the dentinal fibrillæ in the teeth have lost theirs.

We must also remember that the stimulus to pain is elevated, or, in other words, the sense of appreciation of pain is greatly lowered, and



the depth of analgesia is in proportion to the amount of the anesthetic absorbed by the brain cells; also to the amount of positive suggestion employed.

Extent of Work That Can Be Performed During the Stage of Analgesia.

Analgesia may be defined as that state or condition in which the sense of appreciation of pain is entirely abolished or greatly lowered without the loss of the sense of touch or general consciousness.

We must not lose sight of the fact that our patients are not surgically anesthetized, but are only partially so, and we therefore must not attempt to do operative work that is not indicated during this partial stage of anesthesia. The percentage of cases is small which will permit us to lacerate live nerve tissue without causing pain during this stage. Extracting teeth and removing pulps are not to be attempted during this stage. Surgical anesthesia is necessary while performing such work. I have successfully removed several pulps during the stage of anesthesia without inflicting pain, yet I did so with great precaution. The percentage of cases is small in which this may be done, and I believe it best not to attempt it at all. Cutting into a pulp chamber to remove a pulp or extracting a tooth inflicts excruciating pain, and is quite different from cutting on sensitive tooth structure. Patients must be put over the border line into the stage of surgical anesthesia to obtain good results for the extraction of a tooth or the removal of a pulp.

Nitrous oxid-oxygen analgesia may be successfully used in eliminating pain from the following work:

- 1st. In preparing hyper-sensitive cavities.
- 2d. In grinding and shaping teeth for crowns and abutments.
- 3d. Application of the ligature when applying the rubber dam.
- 4th. In adjusting cervical or rubber dam clamps.
- 5th. In treating pus pockets, and removal of calculi from teeth affected with pyorrhea alveolaris.
- 6th. In rapid wedging of teeth to gain space for cavity preparation and filling.
- 7th. In setting crowns or abutments for bridges on hyper-sensitive teeth.
 - 8th. For implantation of iridio-platinum roots.

During the past few months I have implanted a large number of these roots before my various classes during the stage of analgesia. At least ninety per cent. of these roots for implantation cases can be successfully handled during this stage. Success depends upon the ability of the operator in producing and maintaining analgesia; also on his ability in controlling his patient during the above-named phases of operative work.



Control of Patients Governed by Measurable Proportions of Gases and Air Under a Measurable Pressure for Analgesia.

Permit me to impress upon you the necessity of administrating the anesthetic mixture in measurable porportions, under a measurable pressure. Oh! how many overlook this important requirement. The very nature of nitrous oxid and oxygen and its rapid effect upon the human organism verifies the above statement. When I used the term "Scientific" in this paper, it was not my intention to leave the impression that it is a difficult or a complicated procedure, but the proper way. The proper way is really a very simple way and the results are infallible. The first requirement is that of an even and constant flow of the gases, which must be administered under a known pressure. Another requirement is the giving of the proper percentages of nitrous oxid, oxygen and air. The third requirement is that of the operator being able to diagnose his case in order to establish and maintain an even analgesic condition.

If the operator is thoroughly familiar with the above requirements success awaits him. If not, he will not obtain the desired results. After considerable research work, taken from several hundred cases, I have arrived at the following conclusions: The average patient requires 36 gallons of nitrous oxid and 8 gallons of oxygen per hour, the remainder being air to make the combination read 100 per cent. These percentages were not taken from the reading of gauges only, but from actual weight of the gases administered. After ascertaining the correct proportions to administer, drawing my conclusions from correct diagnosis, I found the technique very simple; that analgesia was easy to induce and to maintain for any length of time.

After analgesia is produced I set my machine for the required proportions of the gases and air and find it unnecessary to again adjust the apparatus in at least 98 per cent. of the cases, the depth being governed by the air admitted, and no assistant is required. Why is this? It is because I am giving the patient the correct combination. In other words, the patient is inhaling just enough of the anesthetic combination, which is taken up by the brain cells, to maintain the proper stage. This being administered under an even and constant flow and under a known pressure, holds the patient in an even stage of analgesia, which is ideal for operating. The operator must remember that his success depends upon his ability, the technique he follows; and one of the surest keys to success lies in thoroughness and efficiency.

Suggestive Therapeutics.

To obtain ideal results positive suggestion must be used in conjunction with analgesia and during the introductory stage of anesthesia. A



patient who has been placed in the stage of analgesia and also in the first stage of anesthesia is hyper-susceptible to suggestion, and the success of the operation depends upon the ability of the operator to be master of positive suggestion for the proper control of his patients. Too much stress cannot be placed upon this important phase connected with the work in order to obtain the best results. Analgesia is lost without this great power, and the dentist who does not apply it in his work in conjunction with the anesthetic, will not obtain the results which are possible when it is properly used. Suggestive therapeutics is recognized by the medical profession as a great factor in the treatment of disease, and I have yet to see the successful physician who does not employ it either consciously or unconsciously.

The greatest obstacle that confronts the beginner with analgesia and positive suggestion from obtaining success is the fact that at first he lacks confidence in himself. If he is not a firm believer in its use, he may look upon it with distrust, and believe in material remedies only, and possess a disinclination in persisting in his efforts to obtain the success he deserves. I believe that suggestive therapeutics is imperative, and no doubt this statement is verified by all practitioners who are masters of analgesia. To attain success the dentist must have confidence in himself and the agent he is using. Lack of confidence has kept many a dentist down. If he does not believe in himself and be master of the conditions, he cannot expect results, and not only that, but his patient will not have confidence in him. How important this is. Confidence. Look at it from any angle and you will find it is of true value.

Another requirement for success with analgesia is the proper introduction of the anesthetic to the patient the first time. Many fail here, and as a result, their efforts are in vain. You cannot expect success if you do not approach your patient in the right manner. Not long ago I was called into the office of a very prominent dentist in New York City, who informed me that he had tried analgesia three different times on the same patient, each resulting in failure. I requested him to proceed in the same manner as before, and, trembling with fear, he started the administration, not talking to the patient at all. His patient could readily see the existing condition, and it is self-evident she resisted the anesthetic.

The administration was stopped and the patient allowed to come out of the partial stage. Then I conversed with her about its great merits! I told her that it was a harmless procedure and that it was for her good that it be used. I told her that my success was dependent upon her co-operation; that she could take the anesthetic herself. She replied, "Doctor, I am very nervous, I cannot take that again, and I am terribly afraid you will hurt me by drilling into the nerve." My reply



was, "The most sensitive part of the tooth structure where the dentine and enamel join, is located a considerable distance from the pulp, and I am guided in the cutting by knowing the anatomy of the tooth."

Then she said, "I have a weak heart, and I want to know of what the anesthetic consists." I said, "It is an oxygen combination, a heart stimulant and harmless in every way. I know you are desirous of having these sensitive cavities prepared without being hurt. There is no use of inflicting pain when we have such a harmless method for accomplishing the work, with all the pain eliminated. I know you are willing to co-operate with me in this work, and as soon as you see what it will do for you, I know you will want it for all your work. Now let us start. I will let you take it yourself. Hold the inhaler in your left hand and breathe through your nose just as though you were breathing air. You are taking this yourself, and please breathe through your nose every inhalation. If you breathe through your mouth, you will not get the anesthetic and it might hurt when I start to work. Relax, just as though you were very tired, and make yourself very comfortable." (Time will not permit me to go into the proper percentages of the nitrous oxid, oxygen and air that should be used.) "In a few moments you will feel a tingling and numb sensation, and when you do, please tell me, and I will admit oxygen. Please keep your eyes open and stay awake all the time. You could fall asleep and it would not hurt you, but I do not want you to go to sleep; stay awake and I will be enabled to do better work and at the same time you will feel no pain. So, you are beginning to feel the tingling sensation? Well! Now I will give you some oxygen and you will stay in this condition until I am through preparing these cavities. Isn't that fine? You don't mind it now, do you? I knew you would like this as soon as you understood what it was for, and the relief it will give you. I know you feel somewhat numb. and in a few moments you will be very comfortable and stay that way until I prepare these cavities. Remember, my success depends upon your co-operation with me. You will soon be in a condition where it will be possible for me to do your work and not hurt you in the least, and you must have confidence in me and do just as I say. You must be tired holding the inhaler, let me put the elastic around your head and you can take your hand down; relax and remain perfectly quiet. You are getting along just fine and I will now start your dental work in the easiest manner possible. You will hear the running of the bur, but there will be no pain. I am going to start very easily. Now, there is no pain. I know you feel the running of the bur, but it does not hurt you. You will want all your teeth fixed this way, for there will be no pain and you will appreciate that. I am almost finished with this cavity and you



have not been hurt. Now just rest easy and it will not be long before I will have the other two cavities prepared. Keep your mouth open all the time, so that I can work faster and we will soon be through. Now Mrs. X., we are all through and you were not hurt at all. I will remove the inhaler and you remain quiet for a few minutes and you will lose the effect of the anesthetic before you leave the chair."

The patient then informed me that she did not think it was possible for her dental work to be done without being hurt, at the same time being conscious. She was convinced and very enthusiastic over the results, and said she would have no more work done without its use. I merely cite this case to show what can be accomplished with the most skeptical when it is presented in the right manner. Be master of suggestive therapeutics and the proper technique. Many failures result because patients have not been approached in the correct way. The most essential thing is—to get the absolute attention of your patient—favorable attention.

The one great thing that makes the patient forget about the other things, and be oblivious to all else but you and what you are saying, is confidence in you. Remember! The influence of your suggestion upon the mind of the patient is in direct proportion to the intensity of attention secured. Your power to instill into the mind of your patient the idea to accept your suggestion depends, to a very great degree, upon your technique and the extent of their confidence in you.

As stated above, to obtain ideal results suggestive therapeutics must be employed. Nitrous oxid and oxygen plus suggestion is the ideal combination, and when correctly applied, is one of the greatest stepping stones to success ever presented to the doctor of dental surgery.

I wish to speak of the great principles in this work which are imperative for success. They are: Favorable attention, interest, desire, action, confidence and satisfaction. You must get favorable attention of your patient and change this into interest, and create desire from interest; ripen desire into decision and action. But right here is where so many fall short of their expectations, and the result is not what is desired. The last two of the six requirements, confidence and satisfaction, are the result of the former. How important it is to establish confidence in the mind of the patient, and serve him so well that true satisfaction results. How cheerfully they speak in our favor. Please note these six guiding principles, and remember that suggestion is merely the awakening of the subjective mental force; and if you consider that the activity of the subjective mind is in ratio to the strength and depth of suggestion, you will, at once, grasp the great opportunity it offers, and use it in your daily practice in conjunction with analgesia.



Classification of Patients.

After several thousand administrations of nitrous oxid and oxygen for analgesia, the writer was led to make a series of experiments, and to classify the patients into one of the following classifications. I have endeavored to bring the subject before you in a concise manner. Let us get down to the real facts.

Class H. Normal Breathers. Most of our patients come under this class. After the method of procedure has been explained to them, they have confidence in your ability and method and take the chair willingly. They will do

as they are instructed, and will breathe through the nose and will not resist the anesthetic. They are good subjects for positive suggestion and readily appreciate your efforts in doing their work without hurting them. If all patients came under this classification, failures would be uncommon with all who employed analgesia in their work and gave their patients the benefit of it.

Class B. Abnormal Breathers. Under this heading we have the abnormal breathers, which are, as a rule, very apprehensive and may become hysterical. Usually they take the first few inhalations very well, but later the breathing

will be irregular and somewhat spasmodic. They are extremely hard to control and your ability in controlling them must be made manifest by using positive suggestion. It is useless to try to operate on a patient of this type until you have won them over by suggestion, and obtained their confidence. Their brain, to its entire capacity, is charged with dread and fear, and in order to obtain success, this must first be eliminated from their minds. Even if they were carried to the analgesic state and operating was started, they would resent the first touch of the bur, even if there was no pain.

They recognize, immediately, the running of the bur and will make operative work impossible. Patients of this type are the most difficult to handle, and the right technique must be followed in conjunction with suggestion, to obtain results. They have a tendency to persist in breathing through the mouth, which must be closely watched by the operator, who should require nasal breathing. I find this type of patient hard to control at first, but after being convinced of not being hurt, they make ideal patients, and the greatest booster for analgesia thereafter. When properly handled and as the administration continues, their dread and fear diminishes and they become easy subjects to control.



Class C. Indifferent Breathers

The patients who come under this heading are indifferent in their breathing, but are not hard to control. The greatest obstacle to overcome is to get them to breathe properly. Usually they are very

shallow breathers, especially after the first few inhalations. They drop off in an apparent doze and seem to rest perfectly comfortable. Your instructions to them to breathe properly has to be repeated continually. They will persist in closing their eyes and not trying to keep their mouths open. Any attempt to operate will, as a rule, be resisted by them.

The percentage of air must be lessened and deep inhalations persisted in, until analysis has been secured. Impress upon them to breathe continually through the nose, especially when sensation appears during the operation. When they find that by breathing through the nose pain is eliminated they will gladly do so.

Class D. The Susceptible.

The susceptible patient makes an ideal one for nitrous oxid and oxygen analgesia. As a rule, the only difficulty met by the inexperienced operator, is that of ascertaining the correct proportions of the

gases and air. If the proportions are not correct, the operator will soon plunge his patient into the stage of excitement or the third stage of anesthesia. The patient that is hyper-susceptible will tolerate a very small quantity of the anesthetic. I find patients of this type will require approximately 18 gallons of nitrous oxid per hour. They make ideal patients and very seldom resist the anesthetic. They are calm, tranquil, relaxed and very susceptible to suggestive therapeutics. Their brain cells respond to a very small amount of the anesthetic mixture. A patient under this classification becomes nauseated much more easily than any of the other types.

Class E.
The Non-Susceptible.

The brain cells of a patient under this classification are not susceptible to the regular mixture used with the ordinary case. Their brain cells show more or less resistance to the anesthetic, or, in other words,

they are immune up to a certain degree. The depth of the analgesic stage will vary as to the dose of the anesthetic absorbed by the brain cells. This type of patients will require, on an average, 45 gallons of nitrous oxid per hour, to maintain ideal analgesia. Usually no difficulty is experienced with a patient who is non-susceptible for analgesia, provided the technique is right. Many times the inexperienced operator will endeavor to operate before true analgesia has been secured, and naturally, failure awaits him. We must have patience with the individuals who possess non-susceptibility, and give them plenty of time to pass into the proper analgesic state. As stated above, their brain cells



are somewhat immune to the anesthetic, and a longer period of time must be allowed for the physical change to take place between the brain cells and the anesthetic.

At the beginning of the administration the patient may present forced and deep respiratory movements and will put forth every effort to cooperate with the operator for results, but, as a rule, this will be of no avail. The volume of nitrous oxid is not sufficient as used for the normal case, therefore, the nitrous oxid must be increased to 45 gallons per hour. As soon as the operator changes the percentages of the nitrous oxid, oxygen and air to that required for the patient of this type, good results will be obtained.

Class F. Alcoholics and Drug Fiends.

I wish I could omit this classification, but it cannot be, for we are confronted with many patients of this type. It is a great problem to handle patients who come under this classification, and obtain results that meet our entire satisfaction. Patients of this

type may also be classified like those of the non-susceptible. Their continual use of liquor or drugs has caused the brain cells to become immune to the anesthetic to a certain degree, and a considerable dose must be administered in order that this immunity may be overcome.

At least 60 gallons of nitrous oxid will be required per hour, to maintain analgesia. Patients under this classification are not ideal subjects for any anesthetic, but when the proper technique is used they cause very little trouble during analgesia. We must beware of the stage of excitement, for it is in this stage that we have our difficulties. If it is our intention to produce surgical anesthesia we must plunge them through the excitement stage as quickly as possible and into profound anesthesia. When analgesia is used, and they are in control of their mental faculties, ordinarily they give no trouble.

These are the patients that will test the ability of the operator, for his technique must be right or failure awaits him. The stage of excitement must be avoided and the patient kept in an even analgesic state, in order to obtain results. These patients also test the operator's ability in getting their confidence by the use of positive suggestion.

In conclusion I wish to state that hundreds and hundreds of dentists have realized the merits of nitrous oxid and oxygen within the past few months, and have adopted its use with gratifying results. During my post-graduate work in the various cities it has been my pleasure to come in contact with and talk to many dentists upon this subject. I find some of them very indifferent; these seem not to care whether or not they eliminate the pain connected with their work, while others are eager to use analgesia, and are enthusiastic to give their patients the advantages of modern procedures.



The dentist who does not take pain into consideration, cannot expect to have many boosters, and he wonders why his practice does not increase in a financial way, as well as in the number of patients.

Now, please compare the above dentist with the one who does eliminate all pain from his dental procedures; you will always find the latter busy. He is prosperous. His patients meet him with a smile, and do not dread his dental chair. His appointment book is full for many days ahead. His financial returns are greater. Enthusiastic, yes, for I know what it has done for me. I know to a cent what I realized from my practice before adopting its use, and can conscientiously say that after its adoption and after I had become proficient in its use, I more than doubled my financial returns. I could mention the names of many prominent dentists who would be willing to make the same statement.

Now, my question is this: "Why cannot every doctor of dental surgery do likewise?" You, no doubt, will agree with me that no patient desires to be hurt. Pain has been the "bug-bear" of the dental profession ever since its existence. It has stood between us and thorough work. Pain, plus fear, has been our greatest handicap, and it is up to us as progressive dentists to eliminate this, especially when there is a method that is practical in all of its phases.

Is it not astonishing when we find that only twenty per cent. of the population are having dental services rendered? Why do not the other eighty per cent. come to us? Some few may stay away on account of insufficient means, but the larger number stay away because of the pain and fear. The public is rapidly finding out that the "hurt" method is displaced by a superior method, namely, nitrous oxid-oxygen analgesia and anesthesia, and they are seeking the services of the dentist who is using it.

During the past few months I have observed several articles in the various literary magazines, written by prominent authors, telling of the great merits of nitrous oxid and oxygen. Slowly but surely the laity is becoming educated up to it, and it is only a question of time when it will be found in every office where other modern appliances are found. I could cite many cities where more than one-half of the dentists are employing it in their daily practice. Many of them did not adopt it because they wanted it, but because their patients were asking for it, and they were compelled to adopt its use, or lose a number of their patients, due to competition.

Permit me to mention another very important reason why analgesia should be employed. In surgery we know that the anesthetic is given to inhibit pain, but its most important use is to prevent shock. You would not find a modern surgeon performing a painful operation without



first employing an anesthetic to eliminate pain and shock. Is it not just as essential for the doctor of dental surgery to eliminate dental shock as for the surgeon to eliminate surgical shock? Answer, please. The operations performed by the dentist are, in many cases, equally as severe as those of minor operations performed by the surgeon, for which he employs complete narcosis.

Shock. a good definition indeed: "Shock is a condition of depression, produced by exhaustion of the medullary centers controlling respiration and circulation, by a too sudden, too frequent, too painful, too forcible or too prolonged stimulation of the afferent nerves, the essential phenomenon being a diminution of the blood pressure."

Shock is divided into two phases, namely, psychical and physical.

Psychical, those affected by mental impressions.

Physical, as stated above.

The etiological factor of psychical shock is fear and dread of the operation. It is a daily occurrence that we meet patients of this type, and we must combat the existing conditions. You, who are not doing analgesic work, do not realize the shock you are responsible for, even if you do not produce physical pain to your patients. The dread of being hurt is, in ninety per cent. of the cases, more wearing on the nervous system than physical pain. Hence, the dread and fear of psychical pain is more wearing on the nervous system than the actual work. Then how may this be overcome? By the use of analgesia and positive suggestion.

It is by no means the structure involved, but the exhaustion of nerve centers that produces shock, and it is very dangerous beyond certain limits. It is a dangerous thing to even submit the strong and robust to intense pain. After the nerve cells have been subjected to pain caused by dental procedures for a prolonged time, a condition soon supervenes, known as dental fatigue. This dental fatigue of the system differs only in a very small degree from collapse or shock.

Many of you, no doubt, can speak from your experience when you have had dental service rendered, and you left the dental chair experiencing a "completely used up, all gone, worn out feeling." This is dental fatigue. No doubt you return to the dental chair possessing fear for another siege with the dread little instruments that look so harmless. Fear on the part of the patient, dreading the hour to return to the dental office, and the lack of confidence and efficiency on the part of the dentist, in rendering treatment without inflicting pain, has kept many a patient from having dental services rendered.

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Fear is a factor in many injuries and operations, and the phenomena of fear is based upon scientific principles. Fear is born of the innumerable injuries in the course of evolution. Fear may be just as vital to the patient as produced trauma, and it may cause physiologic exhaustion of, and morphologic changes in, the brain cells. The representation of injury, which is fear, being elicited by phylogenetic association, may be prevented by the exclusion of the noci-association or by the administration of nitrous oxid-oxygen, thus producing the stage of analgesia plus the proper use of suggestive therapeutics, which will impair the associated function of the brain cells, and immunity to fear is established. A patient that possesses great fear of the dental chair may have his dischargeable nervous energy used up by fear alone, or from the pain resulting from trauma upon the teeth, but most effectively by the combination of fear and trauma.

Permit me to explain this discharge of nervous energy which we may call dental fatigue. It is the physiologic response for the sole purpose of self-preservation and a stimulus of the noci-ceptors. Science has taught us that the entire nervous system responds to one stimulus at a time, but the whole nervous system is involved. A patient in the dental chair possessing much fear, and experiencing pain, the adequate stimulus being repeated and repeated by the rapid revolving bur or the broach, suffers more because the new stimulus is received before the effect of the previous one has vanished. I think you will corroborate my statement that a higher maximum is reached than is possible under a single stimulus, however powerful.

It is a well-known fact that we cannot render as high professional service for a patient who is laboring under mental strain or the dominance of fear and pain. The intergradation in most cases is merely absolute and probably every expenditure of his nervous energy not required for efforts at self-preservation is arrested. Repeated pain producing stimuli and fear, such as are met with in our daily practice will, if indulged in. drain the receptacle to the dregs. How may this be overcome, and what is its practical application? In operative dentistry there is introduced a new principle, namely, through the medium of nitrous oxid and oxygen analgesia. This agent, when skilfully given, relieves the patient of his fear of the dental chair. It relieves him of pain during the entire operative procedure. It eliminates dental fatigue and shock and last of all, it should teach us that there is something more in cavity preparation than mechanical art, and something more in dentistry than diagnosis, treatments, mechanical and operative work. It should be regarded as the greatest stepping-stone to the dental profession toward efficient progress and for relief of suffering humanity.



Let me speak of some scientific business principles as applied to the practice of dentistry, and three great truths I want you to grasp, and if you truly appreciate and use them, you will derive much benefit. The first, that the science of a successful dental practice is the science of service. Second, that the dentist who serves best will profit most. Third, that we, as doctors of dental surgery, are teachers of the public, consciously or unconsciously, and it is our duty as progressive dentists to use modern methods and treatments in our work, and increase our efficiency in serving our patients, which can be accomplished by the use of nitrous oxid and oxygen.

I want to ask you a question, you can answer it when you get back to your respective offices. Do all your patients come to you willingly, or do they stay away until their teeth have been invaded almost to the limit with dental caries, and pain causes them to come for your assistance? Remember, we are now on the threshold of wonderful advancement when pain, caused by our work, may be eliminated by a few inhalations of the proper percentages of nitrous oxid, oxygen and air. The oxygen is a heart stimulant, neutralizing, antidoting, and has a power of overcoming any depressing effects caused by the nitrous oxid. It is only a question of time when the fear of the dental chair will be forgotten and the public will acclaim with the greatest pride and gratitude, "Another great benefactor—the dentist."



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Suggestions for the Improvement of the Dental Statute of the State of New York and Other States.

By Rodrigues Ottolengui, M.D.S., D.D.S., LL.D., New York.

Read before the Second District Dental Society of the State of New York.

At the last meeting of the New York State Dental Society I presented a paper entitled, "Can the Illegal Practice of Dentistry be Limited by Law?" (published in Dental Cosmos, Oct., 1913) following which a committee was appointed to consider the revision of the State dental statute. At this same meeting the State Society was reorganized so as to include the District Societies, and as a consequence the District Society is now an integral part of the State organization, and therefore is entirely within its rights in discussing at a regular meeting any proposed action of the State Society, to the end that the State Society officers and Committees may become informed as to the wishes of the members of the This is more particularly true where the proposed action would have any special effect upon the district. While it is true that the illegal practice of dentistry is an object of concern in all districts of the State, it is likewise true that infractions of the law are more numerous in the First and Second Districts. For this reason I have felt that the Executive Committee of this Society was entirely within its rights, and intended no disrespect to the State Society Council and special committee, in asking me, one of the appointed committee on revision, to present my views to this body in open meeting before presenting them to my confreres on the committee. Indeed, I feel that the Executive Committee has but exhibited a proper sense of the duty of this Society to the State in setting aside one evening for the discussion of this topic, which so closely relates to the health and well-being of our citizens.

In my communication to the State Society I discussed at considerable length the relation between dentistry and the health of the public, and upon this premise based the argument that it is a prime duty of the State to enact the best law possible for securing effective dental service. I therefore need not particularize at this time, but I wish to call your attention to at least one phase of the present situation.

The propaganda of dental prophylaxis is now moving with such impetus that the attention of the people is being rapidly aroused. Throughout this entire broad land dentists are telling the people that the mouth is not only the portal of health, but likewise the gateway of disease. We are preaching that a large percentage of body ills are traceable to mouth



conditions. We should at least believe this to be a fact or else cease our sermonizing. What, then, is our first duty to the community? If disease of the body may result from neglect of dental service, or from incompetent dental treatment is it not the task of our profession to guard the public from incompetency, from imposition, from charlantry?

It is a huge work, but as professional men let us set our shoulders to the wheel and push, with our hearts in the pushing, till the wheel shall begin to turn and the ponderous machinery of justice accomplish something for the betterment of present conditions.

Che Purposes of Dental Caws.

The purposes of dental laws may be divided under three general heads. First, the proper education of the dentist, through the dental school system. Second, the measurement of the product of the school

by examination, those who show sufficient proficiency receiving a license to practice. Third, the protection of the public from incompetency, either by revocation of license of the legal practitioner or by punishment of the illegal practitioner.

Dental Education. Is in need of revision has been pointed out by the Board of Regents, and their advice should be followed, and the law altered in conformity with their wishes. This especially relates to the instruction of the undergraduate. There is a phase of dental education, however which the thoughtful men of our profession have been viewing with increased concern, and this relates to so-called post-graduate teaching.

Post-Graduate Ceaching.

With a growing tendency toward division of dentistry into specialties, there has arisen a vast number of men who by devoting particular attention and study to a single branch of practice have ac-

quired specialized knowledge therein. Dental societies throughout the country are organizing study classes, and engaging specialists to lecture to men thus seeking this special knowledge. This is all praiseworthy work, but the time has arrived when our Regents should take cognizance of the possible abuses which may arise, and which, indeed, have already arisen.

The demand for post-graduate study has grown so great that many men have taken up the work, not so much because of any special fitness to teach, but from a desire to collect fees through the formation of study classes. This is not only done by legal practitioners of this State, but some of these teachers have been men from other States; men without license to practice in this State; men who have never proven



to our Board of Examiners that they have any sufficient knowledge of dentistry, either to practice or to teach; men in many instances traveling about the country in the employ of dental goods dealers, and who, therefore, are in reality but traveling salesmen. This is particularly true of apparatus for the administration of nitrous oxide. Many of these itinerant teachers are really competent and well-informed specialists, but appearing as they do in the interest of a special trade house, and talking favorably of a special apparatus, they too often fail to tell of the dangers of anesthesia.

All of this is wrong, and should be regulated now while it is in its incipiency. My suggestion would be that study classes for post-graduate work should either be conducted under the control of the college, or of the district dental society. Study classes, conducted by other dental societies or by private individuals, should be instructed only by teachers receiving teachers' permits from the Board of Regents, after recommendation of the Board of Examiners, and the Board of Examiners should have the right to examine such candidates for teaching licenses prior to recommendation therefor to the Regents. This will probably be a new idea to most of you, but I think it merits careful consideration, and I may add that in formulating a statutory requirement whereby the Regents may have a closer supervision of post-graduate teaching it might even be advisable to include the district society within the provision requiring that its teachers should have permits from the Regents.

Boards of Examiners.

We come now to the second phase of the law, that which provides for a testing of the product of the schools, and at once we must admit that in this particular all dental statutes are wofully weak.

In discussing this I would have it understood that I am in no way personal; I am not thinking of or speaking of the Board of Examiners of this State, nor of any particular State but of all States, when I say that not one Examining Board in this country is appointed with due regard to the duties which are entrusted to them, nor of the power which is lodged The laws of this country specify the quality and degree in their hands. of education which a dental college should deliver to its students prior to graduation. But before the college graduate is granted a license to practice he is compelled to submit to an examination as a test of the training he has received. Now who conducts this test? A Board of Examiners. But in what manner has the board been made to show that it is qualified to examine? I have never heard that such qualification has ever been demonstrated by any dental board in the United States. Yet surely if these men are to determine whether or not a candidate be sufficiently educated to receive a dental license, they themselves in some manner



should be required to show that they have the ability to form this judgment..

It seems to me that this is a subject worthy of the most serious study. I believe that the time is near at hand when the powers of the dental boards will be greatly broadened. I believe that these boards in the future will not only examine candidates for license, but that they will also retain supervision over the practitioner after that license has been granted. I believe that the board also should keep the registry of legal practitioners in the State; that it should see that its licentiates deal justly, professionally, and capably with the public, revoking the licenses of offenders; obtain evidence against and prosecute illegal practitioners, and lastly, periodically inspect the colleges within the State and in other States, each examiner thus becoming familiar with the college teaching of the branch or branches in which he examines.

It can readily be seen that a dental board of this character, if made up of competent and conscientious men, would become real guardians of the dental service which is rendered to the public. Such examiners would be important public officers, and should be well paid for their service.

Appointment to such an examining board should be made only after competitive examination of such a character as would show that the applicant possessed those qualifications which would enable him to properly fulfill his obligations.

This may sound Utopian. But if dental service means to the public health what dental lecturers are claiming, then an enlightened public will some day demand just such protection from dental incompetency as a board of this kind could furnish.

Leaving this outline of the future and coming to the present, there is very little doubt that the Regents of this State are dissatisfied with the existing examining board, and this is partly shown by the fact that they ask for a change in the method of appointment. They ask to be relieved of the restriction which compels them to accept the nominee of the State Society. This request should be granted. Progress in this direction demands that examiners shall no longer be chosen because of their popularity or because of their prominence, but solely and only because they would be capable of properly fulfilling the duties of dental examiners. To this end such change in the present law should be made as might be advised by the Regents. In addition I would recommend that at least one of the Board should be a salaried man, giving all of his time to the work which will be entailed if other changes in the law which I shall recommend should be adopted. In any event it would be well to have one such Board



member, as an entering wedge to arouse the State to provide a full board of salaried men.

Next we come to that phase of the law which is supposed to control and regulate the actual practice of dentistry.

Control of Dental

In my paper read before the State Society I mentioned the fact that the present law permits the laboratory man, or so-called mechanical dentist, to practice without a license; I intimated that many abuses had arisen from this permissive feature of the

law, but I declared that I would not discuss the problem at that time. I will do so now.

Under the present law the State has no control whatever over that vast body of men known as mechanical dentists. No educational standard is met by them; they take out no licenses, and do not even register. The State is ignorant of their names or whereabouts, and even if it had knowledge of their doings it could exert no control. This condition of affairs should cease. It is largely from the ranks of these laboratory men that the illegal practitioners arise. First the laboratory boy sweeps out the offices and watches the vulcan-Then he polishes vulcanized plates. Then he sets up teeth, God forgive the statement! Then he takes impressions, by which time he gets his hands on the patient. From then on his progress is rapid. Soon he treats toothache, when the principal is absent. Presently he does the same when his employer is present. Then he removes decay and fills temporarily with gutta percha; then with cement; then with amalgam.

About this time he asks either for more wages or for a partnership, the request being dependent upon his nerve power. If refused he "opens an office." Thus we have the brief story of the education of one style of illegal dentist.

Let us glance now at the man who develops strictly along mechanical lines. When he becomes expert, or thinks that he has become expert, in plate work, crown and bridge work, etc., etc., he finds that wages, or salary, no longer pays him. He opens a laboratory of his own and solicits patronage from regular practicing dentists. Some of these laboratory men have prospered and have developed a certain degree of skill, but what is worse, they have likewise developed such belief in themselves that they unhesitatingly offer to adivse the regular practitioner as to the best method of serving his patient.

Let me recite an illuminating instance. Some two or three years ago I desired to supply a patient with a removable retaining appliance, and being short of time, I telephoned to one of the most prominent dental laboratories in Manhattan and asked that one of their men call at my office



to receive an order for a retainer. A young man came up and I began to instruct him as to the plan which I wished them to follow, when he interrupted me to remark: "That is not necessary, Doctor. Just give me your model and our expert will make the proper retainer for you." This is bad enough, as an example of sheer audacity. But what is worse is that many incompetent dentists attempt the correction of malocclusion or the insertion of bridge dentures, guided entirely by the advice of these laboratory proprietors, or their so-called experts. This is all wrong, and especially in the treatment of malocclusion much serious malpractice results.

These laboratory men will declare that they do nothing for the patient, and that they are therefore within the law. The pity is that this statement is true. Then let us alter the law.

I have several recommendations to offer.

First. While permitting the employment of a mechanic in the laboratory by a legal practitioner, such mechanics should be known as "mechanical assistants," and every mechanical assistant should register as often as he changes from one employer to another. In this manner the State would know just how long and where each mechanical assistant shall have been at work.

The employer should be responsible for the mechanical assistant. The mechanical workman must be counted a mechanical assistant so long as he is in the employ of a legal practitioner who assumes responsibility for his work.

Should a mechanical assistant set up in business for himself he becomes a "dental mechanic," and every dental mechanic should be compelled to obtain a license. To obtain a license he should pass an examination. To be eligible for the examination he must have had at least three years' experience as a mechanical assistant, or else have had at least two years' training in a regular dental school.

Moreover, every dental mechanic should register annually, and at the same time report the names of all assistants in his employ. In this manner we do not add any burden to the dentist who may need help in his laboratory, but by compelling such laboratory assistant to register whenever he passes to a new employer, the State would have a constant record of such men and would know how many years' experience they had enjoyed.

This would aid in determining the eligibility of the applicant for examination as dental mechanic, which I have set at three years' practice as an assistant. I have also included two years of training in a regular dental college, as fitting a man for such examination. A great many men



attend college who can never graduate, but who develop a skill which would fit them to become dental mechanics. If this calling be created and regulated by law, the college teachers could advise such men to give up hope of becoming general practitioners and take the examination for license as dental mechanics.

The compulsory registration of these dental mechanics would keep the State advised as to their whereabouts, and a clause permitting revocation of their licenses would do much to mitigate the evils v hich I have already described.

Similar Law in Force in Dew York. It may seem to some of you that this is another Utopian idea, and it therefore may surprise you to know that I have taken the scheme almost bodily from the existing statute regulating the practice of pharmacy. This pharmacy law not only provides

that the graduate pharmacist shall take out a license after examination, but that the druggist also shall be examined and receive a license. It is provided that a druggist may have apprentices, and time served as an apprentice, as well as time spent in a pharmacy school, is credited to the applicant for druggist's examination and license. Moreover, the druggist is compelled to register annually, and the fees from such registration are paying the expenses of engaging inspectors who visit drug stores and discover infractions of the law.

By applying a similar system to dentistry, and including the dental mechanic within the requirement of examination license and registration, the State will be given some authority to mitigate a great evil, whereas at present it has none.

The statute should definitely state the limits of work which may legally be done by the mechanical assistant and by the dental mechanic, and neither of these should be privileged to plan work, for by every analysis the planning of work comes well within the meaning of the word "diagnosis," and to make a diagnosis should clearly be defined as practicing dentistry. On this subject I am prepared to offer extended argument if needed, but at this point I will only say that the dentist who cannot himself plan a piece of bridgework, and who inserts a bridge-piece made by a mechanic who has never seen the mouth, may and often does produce in his patient a focus of infection which may cause serious disability, disease, or even death. It was such work which aroused the protest of Dr. Hunter against "septic dentistry."

Similarly, the dentist who is incompetent to diagnosticate a case of malocclusion, and who attempts to correct such a condition under the advice and with appliances furnished by a public laboratory, often so in-



jures the patient that the most skilled orthodontist cannot repair the damage. Such co-operation between mechanic and incompetent dentist should be prohibited; it should be declared to be a misdemeanor, for indeed in its results it is often a crime.

Regular Practitioners in Mechanical Eaboratories.

It will be simple enough to forbid the dental mechanic to continue this practice, but unfortunately this will not fully suffice, since too often we have regular licensed dentists conducting, or associated with, public laboratories. These legal practitioners

claim the right to treat or diagnose cases, and this right cannot be lawfully taken from them. But at least the law may specify that in cases of malocclusion no one, whether he be a dental mechanic only or a legal practitioner, shall be permitted to plan a regulating device and then himself construct it for another dentist unless the consultation and advice be given in the presence of the patient's guardians. This would not only minimize the evil within this State, but it would entirely prevent men in distant States from furnishing regulating appliances guaranteed to correct the malocclusions of the sons and daughters of citizens of this State.

I have advocated the legalizing of the mechanical assistant to do certain work under the guidance of a regular practitioner. I would also advise a clause permitting the employment of prophylactic assistants.

Prophylactic Hssistants.

When consulting last year with the attorney of this society in regard to contemplated amendments to our law, the question of the so-called "dental nurse" was discussed. I was in favor of inserting a clause

to the effect that dental nurses, when properly trained, could be legal employees of licensed dentists. The attorney pointed out that as there is no such person as a trained dental nurse as yet in existence, no such recognition could be placed in a statute.

There is little doubt in the minds of those who have studied this problem that the dental nurse will soon be needed as much as the medical nurse. But just how she should best "arrive" is a difficult question. All agree that her work should be limited in scope, that she should pass an examination and hold a license; that she should be registered, and that she should only work with or under the control of a legal practitioner. But where the nurse is to be educated is a problem yet unsolved.

In planning this new statute to control mechanics, dividing these men into two classes, the unlicensed, or mechanical assistant, and the licensed, or dental mechanic, the analogous position of the office assistant and the dental nurse immediately become apparent. I would suggest, therefore, a statute permitting the employment of prophylactic assistants, with a



prescribed and circumscribed sphere of work, these prophylactic assistants later on to give place to the regularly trained and licensed "dental nurse," "dental hygienist," or whatever she may be denominated when the educational problem shall have been solved. All things must have a beginning. Only the Creator can produce a hen without an egg, or an egg without a hen. For the present let us create a prophylactic assistant, and the dental nurse will work out her own salvation.

Control of Tilegal Practitioners.

We come now to that phase of the question which perhaps is the most important of all, the preventing, or at least limiting, of the illegal practice of dentistry. Probably no statute, however well en-

forced, would relieve us entirely of this incubus, yet our present law is so totally inadequate to cope with the evil that we should feel compelled to try almost any scheme which promises relief. New York State has probably more illegal practitioners than are to be found in all the other States combined, and New York City has probably at least half of all that are in the State. It is then the duty of the Empire State to clean house, not only for the benefit of our own citizens, but because any law found to be effective here would be copied to the benefit of all other States.

Yet at the very outset we must follow the lead of other States, if we would try out the best solution yet offered. But in following their example it is possible that we may improve upon the plan so as to make it more effective.

The two best weapons which the State may wield in this warfare against illegal practitioners are compulsory annual registration and revocation of license. It has been said of the latter that we already have the right to revoke licenses, yet we have exerted the right but twice. The law, then, should be strengthened in this regard, and it can be. In relation to compulsory annual registration it has been declared that it would demean our profession to pass such a law. Yet at present these critics see no disgrace in the deadly injuries annually done to confiding and deluded citizens in the name of dentistry.

A number of States have compulsory registration. Illinois once in two years, Missouri, New Jersey, Michigan, Indiana and others, annually. In all of these States the registration of its dentists has proven of benefit. In the first place, a fund is thus automatically provided which may be used in obtaining evidence against and prosecuting illegal men. How may such a fund be more easily or more justly obtained than by collecting one dollar annually from the legal dentists of the State? This is so self-evident that I shall not discuss it unless compelled to do so.



Dead Dentists Practicing Dentistry.

One of the advantages of annual registration is found in the fact that a dead man cannot register, whereas at present many "dead men," though not registering, are practicing. It was declared to me by a prominent advertising dentist that a man may

build up a practice in a locality, using his own name and that in case of death the widow would lose the "business" if she could not continue to use the dead husband's name while hiring men to work for her. My reply was that when a minister, or a physician, or a surgeon dies the widow cannot hire men to assume the responsibilities of the deceased. And now that we are learning that every time we deal with a root canal, or with diseased sockets, we are dealing with the health of the patient, it is time that dentistry should be elevated to the plane of medicine and surgery. Whilst I approve of the general idea of annual registration, I also believe that we can improve on the statutes in vogue in other States. There is a feature of registration, which I think would be most advantageous, which I have not found in any of the western laws.

I would suggest that it be made compulsory for every licensed dentist to register annually and pay one dollar, said registration being made by filling out a blank to be provided for the purpose by the secretary of the Board.

A list of the names and addresses of all registered dentists should be published annually on a specified date, as for example, June first, or on such date as would permit the publication of the names of men graduated and licensed in the current year.

Any dentist failing to register in time to have his name included in the published register should be subject to a fine of five dollars in addition to the general fee. If this fine and fee be not paid within thirty days of notification of such delinquency the license of the offending dentist should be automatically cancelled.

This is good as far as it goes, but now I call special attention to an added feature which I believe would greatly increase the effectiveness of the law.

Dentists to Report Illegal Practitioners.

I would recommend that a copy of the registry be sent to every dentist registered, and that conspicuously printed therein should be a request that each legal dentist scan its pages for the names of all dentists practicing in his neighborhood, or elsewhere,

and that all names of men known to be in practice but not registered should be reported to the secretary of the Board. It should also be made clear that such reports will be considered as confidential. This is analogous to similar complaints made in this city to the Health Department



in regard to defective plumbing, etc., etc. The names of these informers are never divulged, and it is due largely to this method that the plumbing in the apartment houses of this city are kept in order, since any tenant may make complaint without danger of having the fact known.

Duty of Dental Inspectors.

Upon receipt of such information it should be the duty of the secretary of the Board (the salaried member) to have a regularly appointed inspector call upon the dentist said to be practicing though not registered. This inspector would in effect be a police-

man. He would be recognized as a regular authorized officer, acting entirely within his legal rights and but performing his duty when asking, "Why are you not registered?" He would not ask, "Why are you practicing dentistry?" I wish you to note that well. But he would state the fact, "You are not registered," and ask, "Why not?" Thus interrogated by a man legally empowered to make the inquiry, the dentist must make some reply. What would it be?

If a legal dentist and for some reason he had neglected to register, he would state his reasons, whereupon the inspector would serve upon him a notice to comply with the statute within thirty days, failing to do which he would have his license declared null and void and would thereafter become an illegal practitioner, liable to prosecution, fine and imprisonment.

Then suppose the man interrogated were an illegal practitioner. Of course, he could give no explanation as to why he was not registered. He could not even claim, as many do now, "I am only practicing mechanical dentistry," because, as I have recommended, the dental mechanic would be compelled to register annually, the same as the regular practitioner. What answer could he make? "I am not practicing dentistry; I am using these dental chairs and this dental outfit as toys?" or, "These things belong to another man and I am only storing them?" I ask you, gentlemen, what is the illegal man to say to the inspector when he calls and asks simply, "Why are you not registered?" Is it not true that out of his own mouth he must either exculpate himself or else convict himself?

How is it at present? To convict an illegal practitioner it must be proven in court that he is practicing dentistry. The defendant is not obliged to prove that he is not practicing, but the plaintiff must prove that he is. Legal proof of this is often hard to get, and even after conviction the convicted man may resume practice with more safety than ever, because it becomes more difficult to collect evidence against him the second time. "Once caught, twice shy," is a trite saying that applies here.

But under the annual registration and inspection system the accu-



sation "You are not registered" is but the statement of a fact easily shown by producing the published register. The burden of proving that he is not a dentist then lies with the defendant, and proof that he is not practicing is the only valid excuse for not being registered. But it may be that the defendant would simply say, "I decline to answer." In such a case we must so strengthen our position by statute that it shall no longer be necessary to produce witnesses for whom dental work has actually been done. And this brings us to the very important question of inserting an adequate definition of dentistry into the law.

Definition of Dentistry.

By definition of dentistry I do not mean a dictionary definition, but such a legal defining of the term that it will be rendered easy to convict a man of practicing dentistry if he really is practicing. Such

a definition should make it possible to convict a man if he can be shown to have signs upon his place declaring that he is a dentist, and for this very reason it should not be legal to practice dentistry under any name other than that of the practitioner himself. It should not be legal for a man who is not a dentist to hire men who are legal practitioners and thus conduct a dental office. Medicine is not practiced in this manner. Coming back to the sufficiency of evidence, if it can be shown that a man announces by signs that dentistry is practiced; if he has an office equipped as a dental office usually is equipped; if he inserts advertisements or issues handbills or cards announcing himself as a dentist, then the burden of proof should be on him to prove that in spite of these things he is not practicing dentistry. He should be obliged to tell why the signs are on his building; why he advertises that he does dental work; why he has dental furniture in his place if he is not practicing dentistry. It should no longer be necessary to engage spies to risk their teeth and health in the hands of illegal practitioners in order to prove that they are illegal practitioners. I am positive that a statute could be so drawn that proof of illegal practice could be obtained without resort to spies. This should be done.

The Dental Inspector and Possibility of Grafting.

In my Albany paper I suggested that the Dental Inspectors should be under the control of the Board of Health. This may not be possible, though I still think it might be desirable, that department having thus far escaped suspicion of wrongdoing and conse-

quently enjoying a large measure of the confidence of the public. However, if the Dental Board were properly constituted, and especially if they were employees of the State, sharing the importance of the Department of Health, the inspectors might be placed under their control.

It seems to me that those who may oppose these changes will naturally

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ask the question, "How will this improve conditions? Why may not these inspectors become blackmailers or grafters, just as detectives under the present system have?"

I say this is a proper question, and I am compelled to admit that the dental inspectors may become grafters. But I also believe that while perhaps no law can eliminate this disgraceful feature of National, State and civic government, that law will be best which renders grafting least easy because detection would be apt to ensue, and in this respect I think that the suggested changes in our law will accomplish much. Let me compare the two systems and point out the possibilities under each.

Graft Under the Present System.

Under our present system the State Society appoints a law committee, whose duty it is to prosecute illegal practitioners. These men, one in each district, are engaged in the practice of dentistry, receive no salaries from the State, and consequently give their

time at a loss. This is a poor start where the public is to be served. This committee engages attorneys to prosecute the cases. The fees which these attorneys earn are not so attractive that they would devote any great share of their time to this work. But finally the evidence must be collected by detectives, who in turn must hire persons to have actual dental services done at the hands of the suspected persons. Once these detectives have such evidence, is it not a temptation to settle with the dentist rather than with law? In one case there is graft money, with a possible regular stipend paid for future immunity. In the other there is no profit whatever. And whenever it is more profitable to do wrong than to do right the temptation looms large. To keep the detective in the straight and narrow path the path must be made so narrow that he would become conspicuous by straying out of it.

Under the present system it is possible that one conviction may be obtained to act as an object lesson and lever to make the illegal man crave the protection of the system when resuming practice. The number of once convicted men who are still in practice in Greater New York lends color to the accusation that this system of protection for a price exists. And there is no remedy, and little danger of detection; in fact, detection is almost impossible.

Graft Under the Proposed System.

Under the proposed plan, first the controlling body, either the entire Dental Board, the secretary thereof, or the Health Board, as the case might be, would be salaried State officers, and not men earning a living by private dental practice. Second, the

prosecuting officers would be district attorneys or county prosecutors.



Lastly, the Dental Inspectors should be regularly hired men, coming within the rules of the Civil Service, and should be properly paid. Now let us imagine that one of these men obtains evidence against an illegal dentist who is convicted. Suppose that this dentist should resume practice. His neighbor, the original informer against him, will lodge another complaint with the secretary of the Board to the effect that this man is practicing though not registered, with the result that the Inspector will be officially ordered to make another investigation. And so long as there is a register, and so long as the name of the illegal man is not found therein, just so long will his legal neighbors continue to report his case. Thus the Inspector cannot furnish immunity, collecting graft therefor, because under the conditions he cannot hope to have the connivance of the Dental Board, nor of the informer or informers, who are unknown to him and whose personal interests are opposed to the illegal man's continuance in practice.

Revocation of License.

The other stout club which the State should conconstantly wield is the revocation of license. In addition to the revocation because of non-registration, we should have revocation for unprofessional con-

duct. Unprofessional conduct should be so defined as to give the Board the widest latitude, within justice and reason. A clause in the Michigan law includes as "unprofessional conduct" "the advertisement of dental business or treatment or devices in which untruthful, improper or impossible statements are made," etc., etc. The man who wrote that into the Michigan law did his State and his profession a great service. Observe that the Board may revoke licenses for unprofessional conduct and that unprofessional conduct includes making untruthful or improper statements in an advertisement. The decision as to whether an advertisement contains improper language is left to the judgment of the Board.

Censorship of Dental Advertisements. Suppose that we had such a clause in our own State dental law. We could subscribe to a clipping bureau and have every advertisement of dental parlors in this State in our mail every morning. Advertisements deemed improper could be called to the

attention of the advertisers, with notice that a repetition of similar advertisements would result in a revocation of license. Think what it would mean to the people of this State to have all the dental advertisements censored in this manner.

There is a dental concern in this city which constantly advertises "Specialists in every department." Is this not a deception of the public? What does the public understand by the word "specialist?" In the public mind is not a specialist a general practitioner who has devoted his life



work to a single branch of his profession? Are not specialists considered more skilled than general practitioners? Do not specialists command higher fees? Did anyone ever hear of a medical specialist sinking his own identity, abandoning his name, and hiring himself out to work for a proprietor of a medical shop? I think not. There is no specialist, either medical or dental, occupying any such position. But of this particular place which I have in mind I was once informed by a man who declared that he had been office manager therein for five years, that the only pretense of specialization in the concern was by a man who devoted himself exclusively to crown and bridgework; that all other employees did whatever work they were ordered to do.

Under the present law this place is perfectly legal and may continue to deceive the public as long as printer's ink is purchasable. But with such a law as has been adopted in Michigan this man's license could be revoked, or else he would be obliged to keep his advertisement within the bounds of propriety.

In conclusion let me say that I do not feel to-night that I am occupying the position of an essayist. I was appointed during the last year to study this question of an improvement of our law, and I offer this as a partial report. I have not formulated the exact language of the amendments which I have outlined, but I expect to do so later when meeting with the other members of the Special Legislative Committee. But I would like to have some expression of the wishes of this Society. Therefore, after full debate I would like the president to take special votes on the following resolutions:

Resolved, That the Society approves of the plan of annual registration of general practitioners of dentistry.

Resolved, That the Society approves of the plan of registration of mechanical assistants, and of licensing and annual registration of dental mechanics.

Resolved, That the Society approves the plan for prophylactic assistants.

Resolved, That the Society approves the plan for revocation of licenses.

Resolved, That the Society approves the plan for Regents' licenses for post-graduate teachers.



Mouth Hygiene in the Public School Curriculum.

Some Comparisons and Deductions.

By Albert H. Stevenson, D.D.S., Brooklyn.

Chairman Com. on Public Health and Education, Second District Dental Society of N. Y.; Member Oral Hygiene Com., New York State Society.

Read before the Fourth International Congress on School Hygiene.

Have we or have we not been giving mouth hygiene its deserved place in the school curriculum? Decidedly we have not, as health officers will attest and statistics will verify. The dissemination of disease can only be controlled by prevention, but how meagre is the attention given to that all important source of many diseases—the mouth! As the most common physical defect in the school child (98 per cent, being the alarming average of the school inspection reports), bad teeth, and consequently filthy mouths, have aroused more than one community to action. Public dental clinics, school dental nurses, and more careful inspection, have been resorted to with success, but the most effectual means to the end, a revision of the present instructive methods in hygiene, appear to have been ignored. That much can be done toward the improvement of the child mentally, physically, and morally by remedying the condition of his mouth has been proven. More will be added by unquestionable authorities at this Congress. That proper instruction in hygiene is the most potent preventive measure is an undisputed fact. Why, then, with all our modern progress in the major and minor subjects, has this received such scant consideration by our educators? Because no uniformity of rule nor systematic arrangement has been applied toward the establishment of a rational hygiene of the mouth. Until such a system is adopted, here and abroad, there can be no appreciable result.

An indication of the present status of mouth hygiene in the curriculi of the public schools of the large cities of this country may be obtained from the following. This information was taken from the signed statements sent to the writer by the Superintendents of the Departments of Education of nine of the leading cities of the United States:

(See table on page 944.)

It will be noted that all have dental inspection and teach mouth hygiene from the first grade. However, but one-half hour is allowed each week for the entire subject of physiology and hygiene in seven of the above cities, and but three have the tooth brush drill. Of the text and reference books cited, not one contains mouth hygiene as it is understood and applied by the dental profession.

The City of New York in its new Syllabus in Physiology and Hygiene prepared by Dr. C. Ward Crampton, has a graded system wherein by



СІТУ	*Periods per week	Earliest Grade taught	MOUTH HYGIENE IN THE PUBLIC SCHOOLS			PUBLIC
			Dental Inspec- tion	Tooth- brush Drill	Text and Reference Books	LECTURES
Baltimore	2	1st	Yes	No	Conn's Elem. Phys.	Night School only
Boston	1	1st	Yes	Yes	Conn's-Jewetts Ritchie-Millards	Yes
Cleveland	1	1st	Yes	Higher Grades only	Gulick's Series	Yes
Newark	1	1st	Yes	Yes	Ritchie's Primer Krohn's Phys. Smith's Primer Gulick Series	To Teachers
New York	1	1st	Yes	Yes	Gulick Series	Yes
New Orleans	2	1st	Yes	No	Krohn's Phys.	Yes
Philadelphia	2	1st	Yes	No	Many	No
Seattle	1	1st	Yes	No	Ritchie's Primer Gulick Series Woods-Hutchinson	No
San Francisco	1	1st	Yes	No	Ritchie's Primer Caldwell's "	No ·

^{*} Period-one half hour-Phys. and Hy.-Entire Subject.

proper correlation with other hygienics the mouth is given is deserved im portance. Dr. R. Ottolengui, of New York City, together with the writer, in collaborating with Dr. Crampton, proved most conclusively the value of the tooth brush drill, and it has been incorporated in the syllabus. The City of Newark has a service of practical lectures delivered to the teachers in the various centres, and by this means the teachers are prepared directly to teach the application of mouth hygiene in the class-room.

In instruction upon the subject two aspects, heretofore more or less



ignored, should be emphasized. First, the relation of the mouth as the vestibule of the body to the human habitation; second, the beneficial effects of a clean mouth upon the general health. Both these points, it will be noted, are of a positive nature, and are quite in keeping with modern pedagogics. The futile method of inspiring dread of pain as a spur to cleanliness is ineffectual, obsolete and should be discouraged.* As the subject develops, attention should be given to the brush, its size, shape and bristles, with warnings; the use of the dental floss; the dentifrice, with cautions and advice, and, most of all, to the method of brushing and the frequency of the operation.

Cooth-brush Drill.

As to the method of brushing, the most practical manner of instruction is the tooth brush drill. In this drill the teacher demonstrates to the pupils the correct use of the brush, using her own brush, dry,

in pantomime, and the class doing the same. The children should be notified one or more days before the intended drill, and to be prepared with their own brushes. The use of a large demonstrating brush and model is also a good method, though less effective. As to frequency, the children should be taught to cleanse their mouths after each meal and upon retiring. Physiological chemistry has proven conclusively that food retained in the mouth even an hour ferments and presents a putrefactive source of infection. Then why not teach the child how to keep the mouth absolutely clean, and not set up a false standard of one or two cleanings per day?

Instruction should begin with the first grade, or even in the kindergarten, in simple form, advancing apace with other subjects. With the knowledge that the mouth is the gateway through which passes all food, all water, and part of the air for our sustenance, will come a wholesome respect for this cavity. In proportion to this respect will be the demands of the future, not alone of preventative dentistry, but preventative medicine as well; for is class-room sanitation more important than mouth sanitation, or pure food laws more than pure mouth laws?

I plead then for universal mouth hygiene, uniform, rational, life-saving. Not the hygiene of clean teeth alone, but of clean mouths, at all hours of the day, in class or at play, and as far as possible in the sleeping hours of the child. The benefits of this condition are self-evident. With a clean and not a fertile field for bacteria, with a comfortable and not a disturbing mouth, how much more receptive will be that child for that grander knowledge which we have under difficulties been inculcating?

^{*}This fact should receive the special attention of lecturers who address children.—ED.



Elsewhere will be found an announcement from the National Dental Association Relief Fund Committee of their adoption of the idea of issuing a Christmas seal, to be used on letters and packages during the holiday season, the receipts from the sale of the same to be added to the fund for the relief of needy members of the Association.

The Red Cross Society has long ago proven that this is an excellent method not only of raising money, but of advertising the cause. It is doubtful whether any large number of dentists have ever heard of the National Association Relief Fund, but every man who receives a letter sealed with this seal must immediately have his attention called to it.

It may interest some to know the origin of this fund. At the time of the fire and earthquake in San Francisco the profession of this country generously contributed to a fund for the relief of their confreres in the stricken district. It was a noteworthy fact that after rendering aid to all applicants the committee still had a balance, amounting approximately to three thousand dollars. This was turned in to the treasury of the National Association and became the nucleus of a professional relief fund. No special effort was made to increase this fund until within the past two or three years, but the gentlemen now on the com-



mittee are exhibiting praiseworthy energy in a good cause, and should receive unstinted support.

Almost every association of co-workers in the country maintains a fund for the assistance of its old or ill members. It is particularly fitting that dentists should do this. As a body it may be said that the majority is constantly benefitting by the labors of the few.

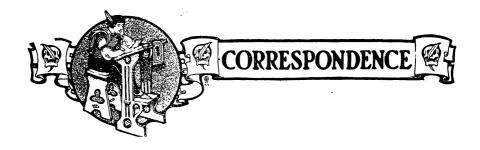
The scientists of our profession, those that work out problems and devise better or easier methods of doing our work are a very small proportion of the whole number of practitioners. The executive men, those that manage societies, invite papers, arrange for clinics and thus give to the scientists the opportunity of recording and publishing their discoveries, are likewise proportionately few. Both classes sacrifice much of their time, thus laboring for the benefit of others. Occasionally, one of these self-sacrificing workers reaches the end of life without adequate means; others are stricken with disease and so incapacitated from earning a livelihood. These men in their day have been our benefactors, and we should have a fund reaching into the hundreds of thousands, from which to draw freely for their care when they no longer find it easy to care for themselves.

Dentists who are not members of the National Dental Association are quite as much indebted to these men as are the members, and should be glad to purchase these seals as a small contribution toward the liquidation of this obligation.

Just what will be the best method of doing this must develop later and will be easily planned when the money is in hand.

The question of the moment is the obtaining of a respectable fund. The committee announce that they have a million seals for sale. Not one should be unsold on January first. To this end let every reader of these lines immediately send a generous check to Dr. Gaylord, with an order for seals. Every society that meets during December should have a stock of seals on hand, for sale to the members present.

We wish success to the project and to the committee.



The Regulation of Teeth by Absent Creatment.

To the Editor of Items of Interest, New York.

DEAR SIR:

Referring to your editorial, "The Regulation of Teeth by Absent Treatment," in the October issue of your magazine, allow me to offer my congratulations for the attitude you are assuming in calling the attention of the profession to these existing conditions. By doing that, you are undoubtedly voicing the sentiment of all who by their assiduous endeavors in the field of orthodontia are aiming not only to benefit humanity, but also to elevate their profession. It is from this point of view also that I wish to enter my protest against a state of affairs that permits the practice of certain branches in our profession in the manner described by you.

Relative to the remedy offered, there is much to be questioned whether the procedure advanced would be of great practical value. suppression of vice by the introduction of legal measures has always resulted in the complication of our laws and rendered the violators more subtle in their illegal practice. This would be more tentative in the case on hand, since the accomplices in all these digressions are legally licensed practitioners. Furthermore, if a law should be introduced, prohibiting the "laboratories" to supply their illegal wares to the dentist, what would hinder the latter from obtaining them from other sources, under different pretences? Moreover, is it the manufacture and supply of these appliances that work the great harm, or is it their presence in the mouths of so many patients? And who is the guilty party that is assuming the responsibility of the effect of those appliances upon the tissues and health of the patients? Is it not the dentist himself? Are not most of these "mechanics" or "laboratory men" planning, advising and making crowns, bridges, artificial dentures and even inlays on the demand of the dentist? If there is a real culprit in this case, it is the man in our own ranks; for we most not loose sight of the fact that the man who resorts to such



means for the purpose of obtaining a fee, is committing a threefold offence: First, he lowers his own professional dignity by applying to a "laboratory" for information and instruction on a subject of which he is *supposed* to possess a certain degree of knowledge; secondly, he renders himself liable for obtaining a fee for services which he is unable to render; and lastly, he is a moral incumbent, in that he abuses the confidence of the patients thus treated by him.

Would, therefore, the introduction of any legal measure correct these conditions? It may lead to the arrest, indictment and punishment of one or more individuals violating such laws, but it will not serve to *eradicate* the conditions that have been the *cause* of this evil. It would seem more profitable to start a propaganda for a better education in the professional ranks; an education that would have for its purpose the cultivation of more ideal professional, social and moral principles, in conjunction with the business transactions in our relationship with the patients.

Sincerely yours,

MILO HELLMAN.

New York, November 10, 1913.

Editor ITEMS OF INTEREST, DEAR SIR:

I wish to endorse heartily your editorial in the October ITEMS. Really, the idea of a dentist seeking or receiving advice from a supply house on the selection of an appliance for regulating teeth, is so ridiculous that comment seems almost unnecessary.

Orthodontia had far better be left undone than done with the amount of knowledge or lack of knowledge indicated in men who must depend on laboratories for instruction. You have expressed the reasons so well in your editorial that I will not comment on the subject further.

Very truly yours,

C. A. HAWLEY.

Editor ITEMS OF INTEREST, 80 West 40th Street, New York City.

MY DEAR SIR:

Your timely editorial in the October ITEMS OF INTEREST criticizing the untenable position of the makers of orthodontic appliances who claim the ability to advise treatment for these most exacting cases, was read by the writer with great interest and harmony of feeling.



It has been my practice to examine the specimens on exhibit by these self-termed "expert authorities" at the dental conventions and the utter impracticability of the vast majority of these "sample appliances" at once places the maker among that great class of charlatans with which every profession is infested. Proof in abundance for all that your editorial decrys can readily be found in such exhibits.

And yet these pseudo-experts are not greatly to be blamed for their existence. If there was not a demand for their wares they would soon cease to be. The great shame then lies in the fact that men, who pose as scientific dentists, will patronize these mechanics so freely that their business has become a most profitable one.

I sincerely trust that the truths set forth in your editorial will be the means of kindling afresh the dying embers of self-respect and professional dignity in the lives of many men who have thus been in the habit of selling their birthright.

Sincerely yours,

ROBERT H. W. STRANG, M.D., D.D.S.

New York, November 4, 1913.

In addition to the above letters we have received numerous others briefly indorsing our editorial position against the "Regulation of Teeth by Absent Treatment." Both Dr. Hellman and Dr. Strang, while deprecating the practice, declare that the root of the evil lies in the back yards of legal practitioners; they declare that if there were no customers there would be no vendors of regulating devices. This is quite true, but it is not against the making and selling of regulating apparatus that we have raised a voice of protest. The evil which we hope to see eradicated is the practice of constructing appliances without examination of the patient, and without informing the patient that the diagnosis and treatment has been decided upon with the advice of a consultant unknown to the parents of the child. It is quite true that this practice cannot be entirely eradicated by statute, but it can be greatly minimized, if the public advertisement of such offers to diagnose cases, could be prohibited. It was also hoped that by bringing this matter to the attention of the dental world, as we have done, we might arouse professional conscience, and this we seem already to have accomplished.

In the editorial in question, we quoted from a catalogue of a house which supplies orthodontic appliances, pointing out that it was wrong for them to offer to outline treatment for unseen patients. With commendable promptness, the dentists who are connected with this concern, and who, being legal practitioners might have hidden behind the legal



technicality that they have a right to diagnosticate cases, immediately took a course which has corrected their catalogue. They have reprinted the paragraph complained of, writing it so as to eliminate the advisory or diagnostic features, and have mailed this to every receiver of the original catalogue, requesting that it be pasted over the objectionable page.

It is in the hope that others may similarly abandon the project of aiding incompetent and unscrupulous dentists to tinker with the teeth of children that we now publish the following quotation from a circular recently received.

"We make Orthodontic Appliances by the Jackson system—that is our specialty. We do not conduct a dental laboratory and do general laboratory work in addition to making regulating appliances. We make regulating appliances and nothing else. We understand our business thoroughly, and are capable of acting in an advisory capacity in addition to making the proper appliance for each case. With over seven years' experience in Dr. Jackson's office—the originator of the system—where we made appliances for his patients and saw them in actual use in patients' mouths we feel certain that any appliance we make for you will answer its purpose in the mouth, as each appliance is made to fit the individual needs of each case, after a careful study of such.

"If your knowledge is limited, don't hesitate to ask our advice as to procedure. It's yours for the asking.

"Full upper and lower plaster models, showing well defined outlines of gum margins, are necessary, and should be sent, even if only the upper teeth are to be regulated. We need the upper and lower models for study purposes, so that we can see condition of articulation. Oftentimes dentists whose knowledge of the work is limited will send an upper model to have an appliance made to regulate a tooth or two on the upper, when the conditions of bite are such that the upper and lower teeth when in occlusion are locked together and prevent the movement of uppers. In such cases, appliances should be made for both the upper and lower. Hence the advisability of sending full upper and lower models."

The above is printed exactly as it appears in the circular, italics included.

We are credibly informed that the gentlemen issuing this offer, are not registered in New York, yet they openly offer to diagnosticate cases of malocclusion, and diagnosis assuredly is an important feature of dental practice. Most important to the patient. Observe that these gentlemen emphasize the fact that they are capable of acting in an "advisory capacity." Moreover, in two places they allude to the fact that the dentist who is to treat the patient may have "limited knowledge!"



Imagine the ultimate fate of a child with malocclusion, treated by a dental practitioner with limited knowledge of orthodontia, and with appliances designed and made by a man who does not see the patient!

—Editor.

National Dental Association Relief Fund.

Editor ITEMS OF INTEREST,

New York.

Dear Sir:

The N. D. A. Relief Fund Committee are entering upon an active campaign this year with the full determination to add not less than ten thousand dollars to the Fund. Soon after November 10th we shall place on sale at all the dental depots in America an attractive Christmas Seal to be used on the back of letters, parcel post packages, or any mail matter. Enclosed please find a duplicate letter which we have sent out to over five hundred dental dealers, which is self-explanatory. Already we are daily receiving letters from these dealers expressing a desire to aid us in every possible manner, together with their orders for nearly fifty thousand seals, which they will use on their own mail matter.

We now ask every dental journal published in this country to call attention, by a short editorial in the December issue, to these seals, where they can be found, and urge the dentists to enter upon the proper spirit of the holiday season by the purchase and use of these seals, thereby adding to our Fund, the title of which emphasizes charity.

The N. D. A. is now the largest dental organization in the world; surely we should have a proportionate Relief Fund. We can and will if our members will only rise to a full understanding of the necessity and value of such Fund. Please join hands with us and we will have soon substantial means to aid our suffering members.

After this Christmas Seal has run its course, we will present another scheme whereby we shall have a continual dropping of a small amount per capita into this Fund.

We beg to keep your editorial column open to us.

Yours truly,
L. G. Noel,
W. T. Chambers,
James McManus,
Edward S. Gaylord.

For the Committee.

N. D. A. Relief Fund Committee.

63 Trumbull St., New Haven, Conn. November 7th, 1913.



Duplicate of Letter Sent to Dealers.

The Committee on the National Dental Association Relief Fund are this year instituting a more active campaign than has been followed since its appointment two years ago at the annual meeting in Cleveland, to solicit financial support, to the extent of establishing a National Dental Relief Fund, the interest of which may be dispensed to members of the N. D. A. in good standing, who by permanent disability are unable to support themselves in the practice of their profession and those dependent upon them.

We are to issue immediately one million Christmas Seals of suitable design, to be used on all forms of correspondence or otherwise, and beg the assistance of the different dental depots and supply houses to aid the Relief Fund Committee (without compensation) in facilitating the sale of these Seals, which is in every sense a work of charity.

Strict account of all disbursements and sales will be kept, and none but actual expense in printing and postage will be charged against the Fund.

All receipts from the sale of Seals, the price of which has been set at \$1.00 per hundred, should be forwarded to this office, when they will be turned over to Dr. H. B. McFadden, Treasurer of the National Dental Association, requiring his receipt for same. With the above described charitable object in view, are you willing to aid us? Posters of suitable design, announcing the sale will be supplied with shipment of the Seals (to wit):

CHRISTMAS SEALS

For the Benefit of the NATIONAL DENTAL ASSOCIATION RELIEF FUND FOR Sale Here.

If willing to co-operate with us, how many Seals may I send you?

Very respectfully.

L. G. Noel,
WM. T. Chambers,
James McManus,
E. S. Gaylord,
National Relief Fund Committee.

953 **Dec.**



henry A. Smith, A.M., D.D.S.

Henry A. Smith, an associate member of the American Academy of Dental Science, died at his home in Cincinnati, Ohio, September 10, 1913, at the ripe age of eighty-two years.

Born in Oxford, Ohio, February 28, 1832, he early manifested a disposition for the study of dentistry, and for more than fifty years he was one of the best-known men in his chosen calling.

Dr. Smith received the dental degree from the Ohio College of Dental Surgery in 1857 and the A.M. degree from the Miami University at Oxford in 1894.

For more than thirty years Dr. Smith served as dean of the Ohio College of Dental Surgery and during this time had become one of the leading authorities in his profession in the Middle West.

No man connected with the dental profession, has done more to advance the research work in dental surgery. His efforts were crowned with distinction throughout the United States.

Not only did Dr. Smith devote the best years of his life to the imparting of his great skill and learning to others, but he was one of Cincinnati's leading practitioners, most of the time during his fifty years of professional life.

Dr. Smith became an Associate Fellow of the Academy in 1892 and it is fitting that this body should place upon its records its tribute to an eminent man—be it therefore,

Resolved, That in the death of Dr. Smith, the dental world has lost one of its most prominent, valued and respected members, and the Academy, an esteemed Associate Fellow, whose memory is forever engraved upon our records—a genial, whole-souled member.

Resolved, That a page be reserved for these minutes to be spread upon its records and a copy be transmitted to the family of Dr. Smith.

MURDOCH C. SMITH, WALDO E. BOARDMAN, HARRY E. CUTTER.

Committee.



Chomas W. Clements, D.D.S., D.M.D.

The committee appointed to take action on the death of Dr. T. W. Clements begs to recommend that the Academy set aside a page of its records, In Memoriam, and that on the page be written the following:

In memory of our late Fellow, Thomas W. Clements, D.D.S., D.M.D. He was a faithful soldier of the Republic, a good citizen, a true friend.

He exemplified to an extraordinary degree all those qualities, which in their sum, make the gentleman.

We mourn his loss, who brought to our profession the richest gifts of mind and heart.

As Ethical Practitioner, Teacher, College Trustee Member and Officer in Dental Societies, he did much for the advancement of Dentistry.

We sympathize with his many friends in their loss; we rejoice that it was our privilege to call him our friend, and we are glad that such a high character and delightful personality came into the profession of Dentistry.

H. A. BAKER,

F. S. BELYEA,

A. R. Brown,

Committee.

Dr. Geo. S. Cigner, A.B., D.D.S.

Ex-president, Atlanta Dental Society; Ex-president, Georgia State Dental Society; Member Southern Branch National Dental Association.

Ex-president Atlanta Dental Society; ex-president, Georgia State Dental Society; member Southern Branch National Dental Association.

Whereas, in the provision of an all-wise Creator, our fellow-member, Dr. Tigner, died July 9th, 1913; and

Whereas, his scholarly attainments, his ability as a teacher, his skill as a practitioner and his keen interest in professional affairs, have placed him foremost among the eminent men in Georgia.

Now, therefore, be it resolved, that we, members of the Atlanta Dental Society, feeling deeply his loss, hereby express our appreciation of his worth and our sorrow over the untimely close of a successful career; and be it further

Resolved, that a page on our minute book be set aside and the Secretary be instructed to inscribe thereon these resolutions, and a copy of same be sent to his widow and to the professional journals for publication.

Jos: D. Eby, Claude N. Hughes, J. K. Barrett,
Committee.

955 **Dec.**



SOCIETY ANNOUNCEMENT

National Society Meetings

NATIONAL DENTAL ASSOCIATION, Rochester, N. Y., July 7, 8, 9, 10, 1914.

AMERICAN SOCIETY OF ORTHODONTISTS, Toronto Can. July 2, 3, 4, 1914.

PANAMA-PACIFIC DENTAL CONGRESS, San Francisco, Calif., 1915.

NATIONAL ASSOCIATION OF DENTAL FACULTIES AND INSTITUTE OF DENTAL PEDAGOGICS, Buffalo, N. Y., January 26, 1914.

Sixth International Dental Congress.

London, August 3rd to 8th, 1914.

Patron - - His Majesty the King.

International Congress Museum.

SECTIONS OF MUSEUM

- 1. Dental Anatomy, Histology and Psychology.
- 2. Dental Pathology and Bacteriology.
- 3. Dental Surgery and Therapeutics.
- 4 Dental Physics, Chemistry, Radiography and Metallurgy.
- 5. Dental Prosthesis.
- 6. Orthodontics.
- 7. Oral Surgery and Surgical Prosthesis.
- 8. Anesthesia.
- 9. Oral Hygiene, Public Instruction and Public Dental Services.
- 10. Dental Education.

Officers

Chairman: Mr. A. Hopewell-Smith, L.R.C.P., M.R.C.S., L.D.S. Hon. General Secretary: Mr. F. N. Doubleday, L.R.C.P., M.R.C.S., L.D.S.



Hon. Curators

Mr. H. P. Aubrey, L.R.C.P., M.R.C.S., L.D.S. (Oral Surgery).

Mr. C. F. Peyton Baly, L.R.C.P., M.R.C.S., L.D.S. (Oral Hygiene, &c.).

Mr. F. Bocuet Bull, L.D.S. (Dental Education).

Mr. F. N. Doubleday, L.R.C.P., M.R.C.S., L.D.S. (Dental Surgery).

Mr. E. B. Dowsett, L.R.C.P., M.R.C.S., L.D.S. (General).

Mr. A. Hopewell-Smith, L.R.C.P., M.R.C.S., L.D.S. (General).

Mr. A. E. Ironside, L.R.C.P., M.R.C.S., L.D.S. (Physics, &c.).

Mr. S. P. Mummery, L.R.C.P., M.R.C.S., L.D.S. (Pathology).

Mr. J. Lewin Payne, L.R.C.P., M.R.C.S., L.D.S. (General).

Mr. A. T. Pitts, L.R.C.P., M.R.C.S., L.D.S. (General).

nature and Scope of the Museum.

It is intended that the Museum shall be an international collection of objects of interest and be representative of every section of the Congress. Its nature and scope include the following:

- 1. Specimens showing the Evolution of Tooth Forms and of the Dentition of Man. Histological Preparations bearing upon recent research. Exhibits illustrating the Chemical Composition and Physiological Action of the Saliva.
- 2. Specimens of Morbid Conditions of the Teeth, Palate, Gums and Jaws, such as Odontomes, Dental and Dentigerous Cysts, New Growths, Diseases of the Peridontal Membrane, &c., Photomicrographs of Oral Micro-Organisms, and Cultures of Micro-Organisms in Test Tubes or in Petri Dishes. New Bacteriological Apparatus and Appliances.
- 3. Specimens of Teeth, Gums and Jaws affected by "Pyorrhea Alveolaris." Microscopical and Lantern Slides of the same. Exhibits of Various New Methods of "Inlaying" Cavities in Teeth. Exhibits of New Methods of "Crowning" Teeth.
- 4. Radiographs of the Normal Dental Tissues, and of Diseases of the same and Associated Parts.
- 5. Exhibition of various kinds of Articulators. Specimens showing the various Methods of "Pressure Casting." Specimens showing modern forms of Continuous-Gum Work.
- **6.** Models showing Abnormalities in position of the Teeth, and Appliances for the Correction of the same.
- 7. Specimens illustrating Methods of Dealing with Surgical Conditions of the Teeth and Jaws, including Cleft Palate, Harelip, Fracture and Resection of the Jaws.



- 8. Specimens illustrating the History and Evolution of Anesthesia.
- 9. Photographs, Charts, Diagrams, Specimens and Statistics of School Clinics. Methods for the Instruction of the Public in the Principles of Oral Hygiene.
- 10. Instruction Forms, Charts, Diagrams, Specimens and Demonstration Models used in relation to Dental Education. The Specimens will include those employed for teaching purposes, and also Specimens of Work of both Students and Pupils, completed in accordance with the definite courses given.
- 11. Historical Objects of Interest, such as Books, Instruments, Pictures, &c.

Regulations.

- 1. Intending exhibitors must give full information with regard to the exhibits suggested for inclusion in the Museum on the application form supplied overleaf. Exhibitors are requested to send in the Application Forms as early as possible. Those received after June 30, 1914, cannot be considered, and lists of exhibits sent after this date cannot be printed in the Official Catalogue.
- 2. All exhibits must be received, properly packed (see below), registered and carriage paid, at the University of London, South Kensington, London, S.W., on or after Monday, July 13th, and before July 20th, 1914.
- 3. The Committee has the absolute right of acceptance or refusal of the exhibits.
- 4. The Committee reserves to itself the right of arranging the exhibits.
- 5. The Committee will be responsible for the proper exhibition of the several exhibits, and for their secure packing and dispatching on return. All exhibits will be insured and any claim for compensation for damage or loss must be made within three months of the closing of the Museum.
- 6. Any exhibitor making a communication to a Section may arrange with the Hon. Curator of that Section for his specimens to be available at the Sectional Meetings, in which case the exhibitor shall be responsible for the safe return of his exhibit uninjured.
- 7. No specimen may be removed from the Museum cases without the consent of the Committee.

Instructions for Sending Specimens. Etc.

A. All specimens of a brittle nature should be securely packed in wooden boxes, on the lid of which the name and address of the exhibitor should be painted or written.

On the inside of the lid a written list of the contents should be affixed.



- B. In the case of wall diagrams and other objects of a non-brittle nature, parcels should be made, and the inscriptions should be affixed to the paper covering as under A.
- C. Each specimen should have some distinctive label attached to it, in order that it may be identified, and should be numbered according to the Section of the Museum in which it is to be placed.
- D. The box should have a large label nailed on, with the address as follows, legibly written upon it:

VITH INTERNATIONAL DENTAL CONGRESS (LONDON, 1914)

Section..... (Please specify Number of Section).

Mr. F. N. Doubleday,
Hon. Secretary, International Dental Museum,
University of London,
South Kensington,
London, S.W.

National Association of Dental Faculties and Institute of Dental Pedagogics.

The National Association of Dental Faculties will meet in Buffalo, New York, at 10 A.M. on the morning of January 26th, 1914. This is in accordance with the resolution adopted at the last annual meting, to meet in conjunction with the Institute of Dental Pedagogics. The Executive Committee will meet at 9 o'clock on the same morning.

(Signed) EXECUTIVE COMMITTEE.

Wisconsin State Board of Dental Examiners.

The Wisconsin State Board of Dental Examiners will convene in Milwaukee at the Hotel Maryland, on December 15, 1913, at 10 o'clock A. M., for examination of applicants to practice in Wisconsin.

High School diploma, application and \$25 fee to be filed with the secretary five days prior to above date.

Dental diplomas to be presented in advance of examination.

W. T. HARDY, D.D.S., Secretary,

F. A. TATE, D.D.S., President. 442 Jefferson Sreet,

Milwaukee.

959 **Dec.**



Idaho State Board of Dental Examiners.

The Idaho State Board of Dental Examiners will meet in Boise, Monday, January 5, 1914, at 9 A. M., State Capitol building.

ALBERT A. JESSUP, D.D.S., Secretary.

Box 1414, Boise, Idaho.

Board of Dental Examiners for the District of Columbia.

The next examination will be held at the George Washington University, January 5, 6, 7 and 8, 1913. Applications should be in the hands of the secretary two weeks before the date of the examination. Fee, \$10. For further information address

1309 L Street, N.W., STARR PARSONS, M.D., D.D.S., Secretary. Washington, D. C.





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DENTAL SYRINGE No. 3

No Waste of Anaesthetic No Waste of Time
No Waste of Money on Repairs

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- 1. More even pressure on the plunger, hence more durability:
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Imperial No. 3. complete in paper box, with two needles	2.25
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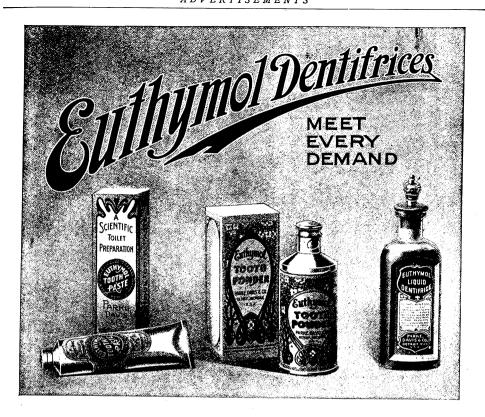
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against dental caries, pyorrhoea, gingivitis, septic infection, inflammation, abscess, etc., by employing

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Euthymol Tooth Paste.

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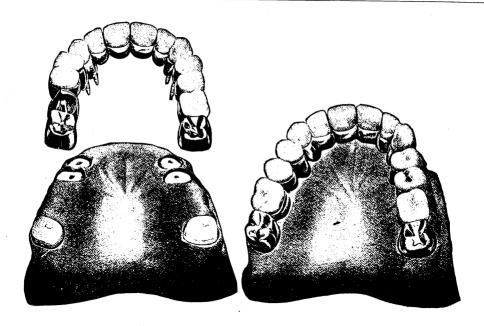
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There is nothing mysterious or difficult about it; it is the same technique you have always used.

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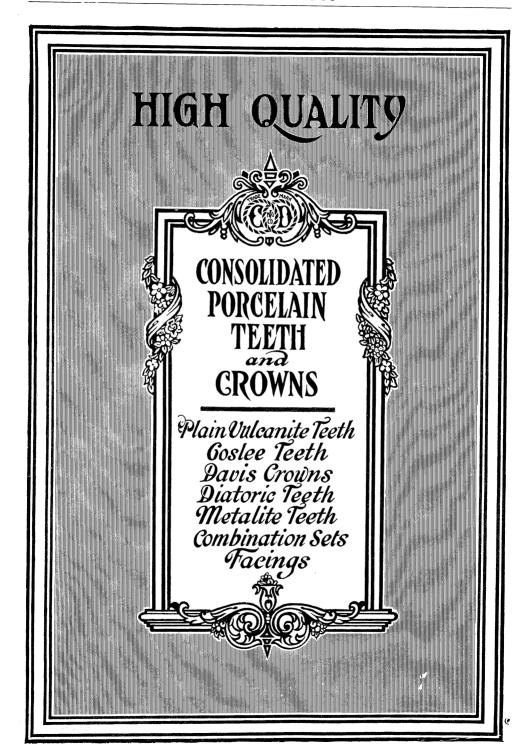
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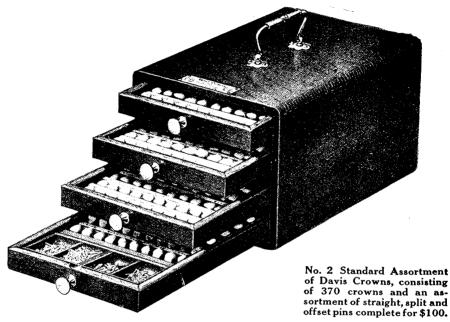
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when you use
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They are Fused-in

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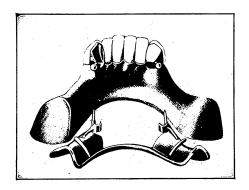
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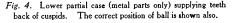
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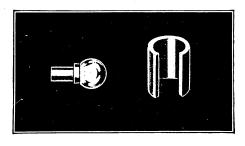
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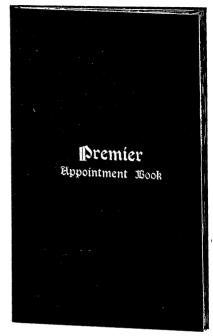
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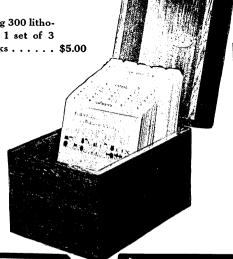
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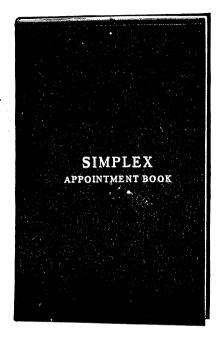
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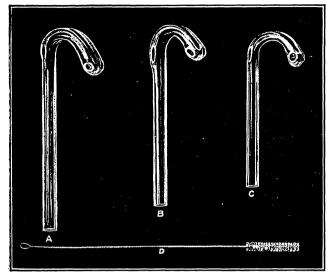


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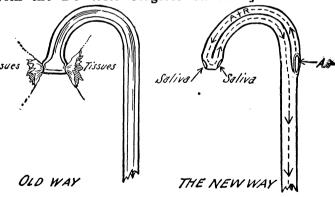
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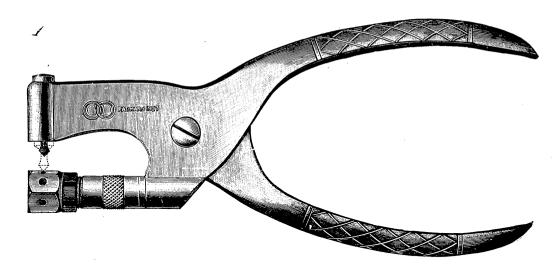
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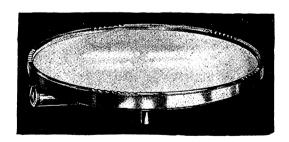
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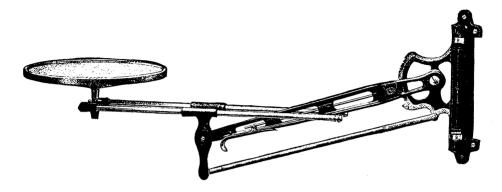
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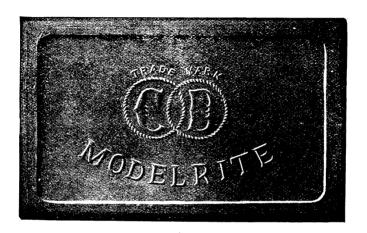
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The modeling compound that dentists like to use. Its impressions are the sharpest and most accurate ever obtained.

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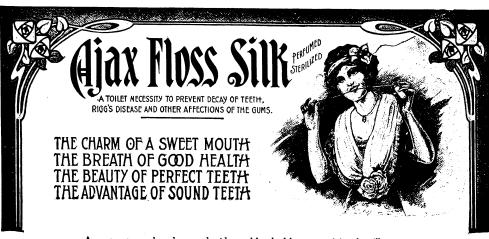
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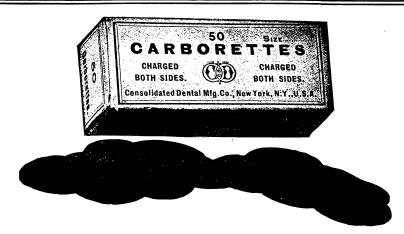
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An extra strong thread, treated with sun-bleached beeswax, giving the silk a pure white clean color. It is also devoid of a strong wax odor. The inside wind is another attractive feature. The silk is thus withdrawn easily without jerking or tangling. The screw cap is fitted with a thread cutter. Ajax Floss Silk is put up in strong glass tubes.

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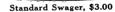
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The popular method of swaging backings on Goslee teeth which Dr. Goslee advocates in his "Technique for using the GosLee Tooth" has not only simplified the making of bridges, etc., but enables the dentist who has not vet become expert in gold casting, to gain the advantages of the BosLee Teeth in crown and bridgework.

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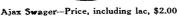
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In glass non-tipping bottles	_	-	-	-	~	.50
Non-leaking wood holders	_	_	-	-	_	.50
In 1 lb Jugs	_	_		_	_	\$1.50

CONSOLIDATED



DENTAL MFG. CO.

NEW YORK

CHICAGO

CLEVELAND PHILADELPHIA

Crescent Alloy



Produces the fillings which will be a credit to you now and in after years.

Consolidated Dental Mfg. Co.

Your Patients Know

PERHAPS you can't tell by looking at them why Realization Burs are better than others. You can't see the quality of the steel of

Realization Burs

But your patients know. They can tell the difference between the smooth, quiet, cool cutting properties of Realization Burs, and the chattering, hot grinding of other burs. You know how far this goes towards pleasing a patient.

Since Realization Burs are easy on your patients, you can make thorough cavity preparation without fatigue, and when you thus prepare a cavity properly your fillings will stay in place, and you gain satisfied patients.

Isn't this the best way to build a practice?

Realization Burs are sold by leading dental dealers.

\$ 1.00 Per Doz. 5.50 Half Gro. 10.00 Gross

GET THE BLUE SEALED PACKAGE

Consolidated (D) Dental Mfg. Co.

The Final Test

In this test the slightest escape of vapor through the packing is instantly detected on the sensitive glass of the mirror.

Every Consolidated Vulcanizer

is subjected to this test before it leaves our factory. Every Vulcanizer we send out is steam-tight by the mirror test.



Not enough vapor escapes through the packing to dim a mirror. This is a hard and exacting test but every Vulcanizer we make must prove itself to be tight by the mirror before we let it leave our factory.

- This test is in keeping with the careful methods we adopt in making all the individual parts of the Vulcanizer.
- We use drop forgings where others use castings; heavy seamless drawn copper pots where others use pots of brazed tubing with brazed bottoms.
- ¶ By our method of manufacturing, you secure a Vulcanizer with a ten fold margin of safety and

Made in the Consolidated Way

CONSOLIDATED DENTAL MFG. CO.

LISTERINE

Listerine is a fragrant non-toxic antiseptic composed of volatile and non-volatile constituents, agreeable to the taste, refreshing in its application and lasting in its antiseptic effects.

Listerine is of well proven value in the antiseptic treatment of all parts of the human body, whether by spray irrigation, atomization or simple local application, and is well adapted to the requirements of general

DENTAL PRACTICE

To cleanse and deodorize before operating; To wash and purify the mouth after extracting teeth; To treat antiseptically, diseases of the mouth; To prescribe as a detergent, prophylactic mouth wash

for daily use in the care and preservation of the teeth.

The prompt action of Listerine in cleansing and purifying the mucous surfaces and its cooling, refreshing effect upon the tissues is very grateful to the patient. Listerine has received the highest recognition as the best general antiseptic for a Dentist's Prescription.

THE

A leaflet designed to convey useful information respecting the care of the teeth. Supplies of this interesting treatise on oral hygiene are furnished free of expense to dental practitioners for distribution among their patients. A specimen copy, together with an order-form,

DENTIST'S

PATIENT

will be sent upon request.

LAMBERT PHARMACAL COMPANY LOCUST & TWENTY-FIRST STS., ST. LOUIS, MISSOURI

Be assured of genuine Listerine by purchasing an original package



EXCHANGES

EXCHANGES

Note.—Rate for advertising in this department of ITEMS OF INTEREST is ten cents per word including captions, "Wanted," "For Sale," "Exchange," etc., and address. Initials charged as words. Rate for agency advertisements is twenty cents per word. Advertisements should reach us by the 15th of the month to insure insertion in the following month's issue, and are payable in advance.

Consolidated Dental Meg. Co., Publishers, 130 Washington Place, New York, N. Y.

- 6768—WANTED—Two operators, registered in Virginia. Good salary and permanent position to right men. Address "Dentist," care ITEMS OF INTEREST, 130 Washington Place, New York.
- 6769—AI all-around graduate, with experience, ability and above all, character, wanted as assistant in high-class ethical practice. Address Brooklyn Heights, care ITEMS OF INTEREST, 130 Washington Place, N. Y.
- 6770—FOR SALE—Up-to-date new electric dental outfit and practice, doing a good business in an eastern Indiana town of 2,000 population. Several good nearby towns. Good reason for selling. Address "Immediate," care Consolidated Dental Mfg. Co., Chicago.
- 6771—WANTED—First-class, rapid operator, must be experienced in gold work and treatments; neat appearance, temperate, references; wages, fifty dollars per week, with advance. Also first-class plate man that can take impressions and take charge. Also first-class laboratory, bridge man, top wages. Address Dr. Robinson, Winnipeg, Canada.
- 6772—FOR SALE—Dental practice, New York State, long established; cash receipts over \$5,000 per year. Price, \$2,500. Address, Retire, care ITEMS OF INTEREST, 130 Washington Place, New York.

- 6773—FOR SALE—Established practice with complete electrical equipment. Pleasant situation and excellent stand in a thriving city of West Virginia of 15,000 population. Address No. 6773, care ITEMS OF INTEREST, 130 Washington Place, New York.
- 6774—WANTED—First-class, experienced dentist, registered in Pennsylvania. Good salary, permanent position and future interest to right man. State age, experience and ability. References required. Address Box 561, Johnstown, Pa.
- 6775—WANTED—Operator, New York license; steady position. Address No. 6775, care Items of Interest, 130 Washington Place, New York.
- 6776—WANTED—Competent dentist to take practice and offices of the late Dr. Charles A. Meeker, at Newark, New Jersey. Business established forty years. Address, stating experience and references, "Meeker," 98 Sussex Avenue, East Orange, N. J.
- 6777—WANTED—Graduate lady assistant.
 Western city, 200,000. Twenty-five dollars weekly to start, with possible partnership or association later. Must be under twenty-five. Up on oral prophylaxis and very nice looking. Address "X," care Items of Interest, 130 Washington Place, New York.



without ruining it the first time

Boil Consolidated Mirrors

as often as you like and you cannot harm them

Newer Dentistry

demands antiseptic conditions and mirrors must be boiled to be clean

PRICES

Plain or magnifying, with bone or ebony handle\$.75
Less handle	.65
Extra glasses, without metal part, each	25

For sale by all leading dental depois

Consolidated Dental Mfg. Co.

New York

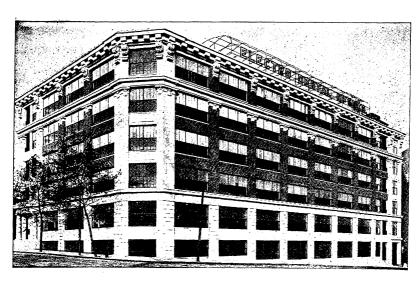
Boston

Chicago

Detroi

Cleveland

Philadelphia



THIS MODERN CONCRETE BUILDING REFLECTS ELECTRO DENTAL SUCCESS

The etching above shows the new, concrete, power-equipped Electro Dental Building recently erected on the northeast corner of Thirty-third and Arch Streets, Philadelphia—a tacit testimonial to the unqualified success of

Electro Dental Apparatus

"First Aid to the Profession"

Thirteen thousand, nine hundred (13,900) square feet of floor space on each of the six stories; window area 85% of the wall space, which, with corner location and wide streets, makes this the best-lighted building for manufacturing in Philadelphia; absolutely fireproof; equipped with 300 h.p. steam plant; this gives you a rough idea of the new Electro Dental Building.

There are nine departments, as follows: Motor; Wiring; Switchboard; Compressor; Plating, Polishing and Japanning; Machine Shop; Testing Room; Receiving Department and Shipping Department.

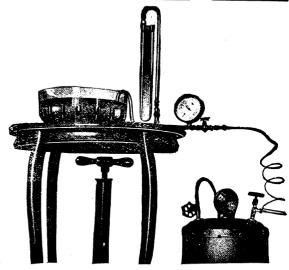
Would you like to know something about the dental apparatus that has made this building necessary?

Electro Dental Manufacturing Co. -:- 3232 Arch Street PHILADELPHIA

The REAL TEST

A badly leaking gold filling would make a perfect record if tested on the micrometer, as this instrument measures movement only, not adaptation.

The air pressure apparatus showing the test tubes immersed in water. The REAL TEST for ADAPTATION



The AIR PRESSURE APPARATUS will show every defect when the test filling is immersed in water; which is the only complete and practical test for adaptation.

HARPER'S SPECIAL QUICK SETTING ALLOY is the only alloy manufactured with which the operator of average skill may insert a filling that will resist from eight to forty pounds air pressure. This is a special alloy made to stand up to this REAL TEST. It is doing this for those who use it, and it will do it for you.

Draft, Express or Money Order must accompany all orders.

"HARPER'S SPECIAL QUICK SETTING ALLOY" PRICES
Single Ounce, \$2.00 Five Ounces, \$8.00

SOLD THROUGH DEALERS OR DIRECT

DR. WILLIAM E. HARPER

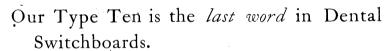
Manufacturer of Harper's Quick Selling Alloys, The Harper Holder and Cleaver Points, The Universal Trimmer and Inventor of Contra Angle Hand Piece

3441 MICHIGAN AVE.

Telephone Douglas 2841 CHICAGO, ILLINOIS

You Need A Switchboard.

- A Switchboard is both a necessity and a luxury. It makes you boss of your own office.
- It gives you a grip on things you can't get at any other way.
- It cuts out the tangle of unsightly wires found in the average office. Every electrical appliance in your office is controlled through it.



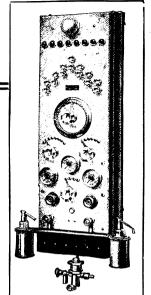
- A booklet "The Type Ten" free on request.
- It tells why the thoughtful buyers are specifying The Type Ten Pelton and Crane Universal Switchboard.

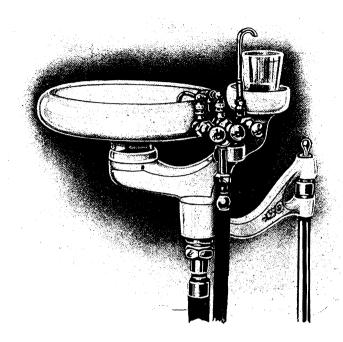
THE PELTON AND CRANE CO.

The Compound Shunt System

Beaubien at Macomb.

Detroit, Mich., U. S. A.





The New 1914 Clark Single for \$40.00

We are introducing this NEW DEPARTURE in Spittoons, as illustrated above, for \$40.00

ALL ORDERS PLACED BEFORE JAN. 1st, 1914, for this complete NEW SPITTOON, will be filled at that price, and

FURTHERMORE, the PRICE ALWAYS WILL be \$40.00.

AS TO QUALITY—IT'S A CLARK.

All Clark Spittoons are equipped with DeWitt Saliva Ejectors

Manufactured by

A. C. CLARK & COMPANY

GRAND CROSSING,

CHICAGO

For Sale by Dental Dealers



How Many Times Have You Ever Said "Hello"

How many times a day do you suppose that little salutation is called over the telephone?

By the way, are you old enough to remember the sensation of amazement that greeted the first telephone?

That first wire stretched from Boston to Somerville and—Wonder of Wonders!—people were talking to each other over a distance of three miles.

That was nearly forty years ago.

So long ago it seems like ancient history, doesn't it? But just think! At the time that first telephone was causing so much excitement, Richmond Straight Cuts already had an established reputation as the Perfecto of cigarettes.

Time erases many incidents from the memory—but quality is lasting. Quality makes an impression that years cannot wipe out. Time cannot diminish the popularity of Richmond Straight Cuts—they are still the best of all Virginia Cigarettes.

20 for 15c Liggett & Myers Tobacco Cox



Oral Prophylaxis

is satisfactorily maintained by the systematic use of

Pond's Extract

Of the many mouth washes at the command of the dentist there is none so serviceable from every practical standpoint, or so free from every objectionable feature as this standard extract of hamamelis in the proportion of one or two tablespoonfuls to a half glass of hot water.

Used several times daily, the mouth is well disinfected and the mucous membrane is toned and strengthened. Thus not only are the tissues kept in a healthy resistant condition, but the dangers of oral infection are reduced to a minimum.

Samples on request.

Pond's Extract Co.

Pulls Like a Magnet

An advertiser has this to say about his advertising in

Items of Interest

"Am delighted with results of the advertising; am receiving orders daily from individuals, dental and surgical companies, hospitals and colleges."

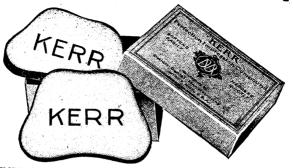
The magnetic Pulling power of

Items of Interest

will help you too

Kerr Perfection Impression Compound

SOFTENS EASILY



IT IS IMPOSSIBLE TO MAKE GOOD WORK WITH A POOR IMPRESSION

Kerr Perfection Impression Compound—Takes a clean cut, sharp impression, showing every detail a accuracy. Softens at a low temperature. It hardens quickly and evenly in the mouth, becoming very hard, and does not warp or creep.

does not warp or creep.

A perfectly fitting plate can be made from a Perfection Impression where other means have failed.

Kerr Perfection Impression Compound (Sticks)—This is a very convenient form where a small quantity of Compound is to be added or traced quickly on an Impression.

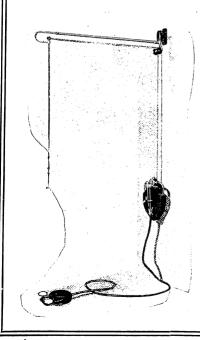
It is also used for taking Impressions of Cavities for inlay work.

Kerr Perfection Impression Compound (Wafers)—This form is a very thin sheet about the thickness of light cardboard. It is very convenient to spread over a surface to add slightly to its thickness. It can be softened Price, per Box, 38 Cents (All Styles)

Ask for Circular G-3

MANUFACTURED BY THE

DETROIT DENTAL MANUFACTURING CO., Detroit, Michigan, U. S. A.



ATTENTION **DOCTORS ATTENTION**

HARDENS

OUICKLY

TOW that the winter is approaching you just must give up your old foot engine and install a modern power driven one. Your patients demand it, and you do yourself an injury by delaying a day longer. Write us at once, and we will help you to equip your office as you would like to have it.

> Get the up-to-date habit. Don't delay. Write now.

SIMS HYDRAULIC ENGINE CO.

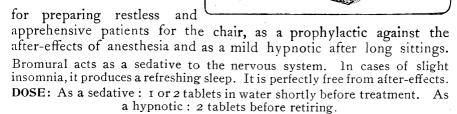
LANCASTER, PA., U. S. A.

Bromural

A Nerve Sedative

ESPECIALLY ADAPTED FOR USE

in Dentistry



In original tubes of 10 tablets.

Sold through Dental Depots and Druggists.

Distributors:

MERCK & CO.

ST. LOUIS. - - NEW YORK.

Literature and Samples on request.

BROMURA

KNOLL & CO.

45 JOHN ST. - - NEW YORK

This Space Reserved

for

"KELENE"

(Pure Chloride of Ethyl) in Graduated Tubes

For Local also General Anaesthesia

For Literature, Address FRIES BROS., Manufacturers
92 Reade Street, New York

Sole Distributors for the United States

MERCK & CO.,

Rahway, N. J.

New York

St. Louis



Equipped with a jar that will not crack from

any sudden change, either hot or cold water.

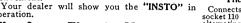
Insto Electric Water Heater and Sterilizer

"Hot Water in a Hurry" "INSTO" Sterilizers Are the most efficient made; the lowest in price. and are operated at a minimum cost.

Simple in Construction and Use.

No Repair Bill. Nothing to get out of order. The INSTO ELECTRIC STERILIZER is not only a necessity, but is an ornament to any office in which it is used. It is Quick, Sanitary, Safe and Insto Electric Water Heater Convenient.

operation.



Manufacturers 514 Main Street.



Price \$3.50

Connects with any lamp socket 110 volts direct or alternating current. Place this heater in any vessel or in an ordinary Cincinnati, Ohio sterilizing pan and have hot water in five minutes,

TRIGGER'S-Note on Methods of Filling Teeth with Gold Price (postage prepaid), bound in cloth - \$2.00 Inlavs. (Illustrated.)

TRIGGER'S - Educational Lectures on Dental and Oral Hygiene. Price, bound in cloth \$0.80 (Illustrated.)

TRIGGER'S-Dental and Oral Hygiene Chart. Illustrative and descriptive. Price \$0.50

T. C. TRIGGER, 580 Talbot St., St. Thomas, Ont., Canada



ittle Giant" Post Puller

VERY dentist who values his time, and his patients' comfort—needs a "LITTLE GIANT" Post Puller—not merely as an adjunct to good work but as a necessity for *quick* work.

Two-thirds of all the dentists in America, by its use, virtually admit that the "Little Giant" is a "three minute wonder" for that is all it takes to extract broken off crown pins and posts.

The "Little Giant" is not only remarkable for what it is, but for what it does—and does well. It prevents pain to the patient, the possibility of splitting a root, and saves considerable time to the dentist.

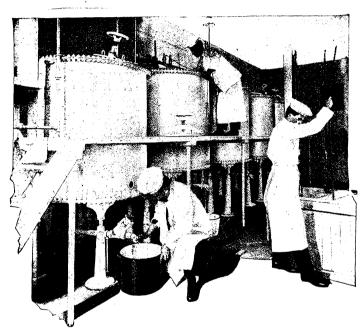
Today is a good time to begin to save time by ordering a "Little Giant" from your supply house. Remember also KURORIS is a splendid device for massaging and cleaning the gums, teeth and cheek.

F. H. SKINNER

7 West Madison St.

CHICAGO

Dental Cream



The Manufacturing Department

By adopting the most modern advanced ideas of sanitary engineering we have built a plant ideal for our purpose. All apparatus is white enameled outside and glass or porcelain-lined inside.

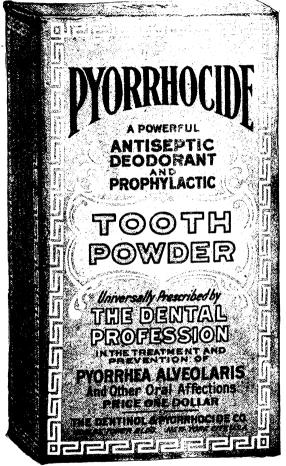
The employees are garbed in white, and we pride ourselves that this department is kept as sweet and clean as any other part of the Snow White Home of Kolynos.

You are cordially invited to visit it, and if you can suggest any further improvements we shall be grateful to you for the recommendation.

Our aim is to manufacture the best dentifrice that can be made.

THE KOLYNOS COMPANY.

THE EFFECTIVE AID ORAL PROPHYLAXIS



INSTEAD of suggesting to patients the use of "some good dentifrice," prescribe

PYORRHOCIDE

and specifically insist upon its regular daily use.

Results always prove its distinctive superiority with satisfaction to both patient and practitioner.

In **Pyorrhocide** the up-to-date dentist is provided an unusual opportunity of enlarging a practice in oral prophylaxis today a concededly important factor in dentistry.

We have just mailed to all dentists "The Practical Method of Successfully Treating Pyorrhea." If you have not received a copy, one will be sent to you upon request, without charge. Original, interesting and distinctly valuable to the practitioner desirous of following the latest approved method of pyorrhea treatment and prevention. You can also have for the asking a copy of "Pyorrhea: Its Causes, Effects, Treatment and Prevention," scientifically exact in its detailed treatment of the subject.

THE DENTINOL AND PYORRHOCIDE CO.

World's Tower Bldg.

110-112 W. 40th Street, New York

Are You Satisfied With Your Results in Pyorrhea Alveolaris?

Those of the profession who are familar with

FORHAN'S ASTRINGENT

notice its almost immediate action and all are getting results from the first treatment.

FORHAN'S ASTRINGENT

is rapidly replacing all compounds heretofore represented as doing the work, and among the profession is becoming recognized as the STANDARD TREATMENT OF PYORRHEA during instrumentation, and thereafter as a healing agent. Two dollars per half oz. bottle.

FORHAN'S PYORRHEA PREPARATION

a paste containing a high percentage of this liquid, has been prepared to enable the dentist to prescribe something which will keep the patient's mouth in prime condition during the treatment at the chair, and also to enable him to place in the hands of the patient, the membranes of whose mouth is in a chronic soft inflamed condition, a preparation of real merit. In large collapsible tubes, 50 cents.

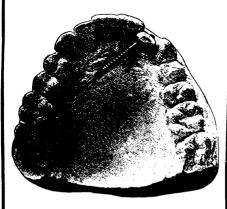
If your dental supply house does not have in stock either preparation, we will promptly fill mail orders on receipt of the stipulated price.

FORHAN COMPANY, Inc.

325-331 Lafayette Street

NEW YORK

Elastic Pressure Jack Screw



This Jack Screw exerts a constant uniform and elastic pressure against the moving tooth, and after once adjusted needs but little attention.

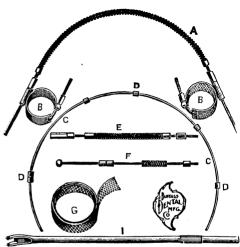
The nuts all remain stationary, the spring follows up automatically the moving tooth and also acts as a positive nut lock.

ASK FOR A Complimentary Copy

_ of _

Canning's "Orthodontia"

It goes into detail concerning the various operations, and describes the application of the appliances offered.



Patented Feb. 28th, 1905

PRICE:—the complete set Canning's Appliances as shown \$6.00

PRICES OF PARTS

Α.	Expansion Arch\$1.00
В.	Adjustable Clamp Bands, each 1.00
C.	Retaining Wire
D.	Retaining Tubes (6)
E.	Elastic Pressure Jack Screw 1.00
F.	Elastic Tension Traction Screw 1.00
G.	Indented Band Material
	Wrench

BUFFALO DENTAL MANUFACTURING COMPANY

BUFFALO, N. Y., U. S. A.

Sole Wholesale Distributors of Canning's Appliances

CROWNS THAT

THE RIGHT ONES

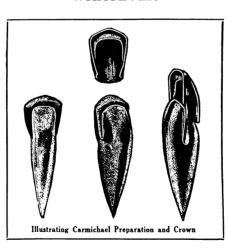
REQUIRED, MAKE SURE

ARE USED. WE **INVISIBLE**

IN POSITION TO

FOR BRIDGE ABUTMENTS, AND PROTECTIVE PURPOSES. THAT HAVE EVEN GREATER STRENGTH THAN THE ORDI-NARY FULL CAP, WITH NO PUBLIC DISPLAY OF GOLD WHATEVER

HAS NO **EQUAL** WHEN **PLACED RIGHT**



PERFECT FAILURE WHEN **PLACED WRONG**

SAML. G. SUPPLEE & CO. 1 UNION SOUARE **NEW YORK**



Hygienic Dentistry

THE quiet dignity, elegance and refinement, which characterizes Clark Spittoons, create an atmosphere in the Dental Office, different from that any other spittoon can establish.

Send for our Spittoon Catalog

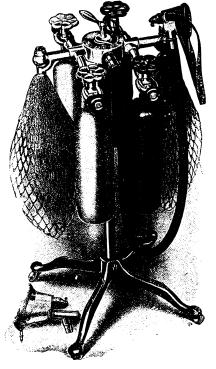
A. C. CLARK & CO.

Earth's Biggest and Best Fountain Spittoon Builders Grand Crossing, Chicago, Ill.

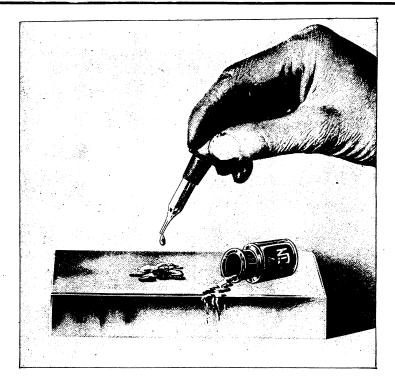
Painless Dentistry

HEY demand it in New Zealand. Dr. F. W. Gresham, N. Z., writes—"I am glad to be able to let you know that as far as producing perfect Analgesia and Anaesthesia, Clark's Apparatus is doing wonderful work for us. We have been keeping patients under Analgesia for two, and in one case, three hours at a stretch, without any trouble whatever, during which time we are removing nerves, shaving cavities in sensitive teeth, preparing abutments and fitting bands without the slightest pain to the patient. The patients that have once had it will not let us drill any tooth without it."

Write for our gas catalog and lectures



AN ADVERTISEMENT WITH A PUNCH IN IT



If the liquid of a silicate cement is affected by atmosphere, the chemical union of the powder and liquid is not the same with the last half as with the first half of the bottle of liquid.

If the materials are properly balanced when the liquid is fresh, they are

not properly balanced when the liquid is partially used.

You are dealing with an uncertain quantity because one of the ingredients has evaporated. This may account for the good results you sometimes have and the poor results you have at other times.

The liquid of TRANSLUCIN is not affected by the atmosphere

The last drop of liquid will produce exactly the same results as the first. In addition to this, it is more translucent than any other silicate made and it is extremely adhesive, so undercuts are not essential, and it possesses marvelous edge strength.

It has no effect upon the pulp and will not discolor in the mouth.

Order a package from your dealer, and if it falls short of our claims to the slightest extent, send back what is left and he will credit you full price charged.

LEE S. SMITH & SON CO. - - PITTSBURGH, PA.

De Trey's Synthetic Porcelain

Has less acid in its liquid than any of the other silicate or oxy-phosphate preparations.

That means that the life of pulps is not endangered. The small percentage of acid causes the primary setting,



while the secondary or final setting is the same in nature as in Portland Cement

To secure a liquid with a minimum of acid that will cause proper crystallization requires a delicate balance between the several elements in the liquid. Therefore, the liquid bottles must be kept securely capped that no element may escape through evaporation.

A cement liquid that requires no care for its proper keeping is usually a liquid that is principally phosphoric acid; the more it evaporates the heavier it gets, and the greater its menace to pulps.

The manipulation of Synthetic Porcelain is simple, yet there are a few necessary principles, set forth in the instructions.

This rule always applies: There is a right way and a wrong way to do everything; and a material that doesn't require a precise form of treatment doesn't give a precise result.

Synthetic Porcelain is as translucent as the tooth itself; it cannot injure pulps, cannot discolor, unless some foreign element is introduced to cause discoloration, and it endures indefinitely.

For Sale Everywhere

THE L. D. CAULK COMPANY

Laboratories, -:- -:- MILFORD, DELAWARE

Caulk's White Copper Cement

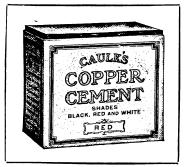
Most dentists have long been familiar with Caulk's Copper Cement (Black). They know its sedative and preservative properties, its tenacity and endurance.

In the introduction of *White Copper* we do not wish to displace Black Copper; we merely present a cement of a less objectionable color than the old material.

We call attention to the fact that in any form the tendency of Copper is to discolor. For this reason we do not advise its use in the anterior teeth.

But our *White Copper Cement* in most mouths will change shade but slightly, and is in appearance far preferable to the usual copper cements.

It isn't all copper, but contains Zinc specially prepared to make the combination most happy.



Actual bacteriological tests have proved that a percentage of copper in a cement gives the same sedative and germicidal effect as one that is all copper, and thus the objectionable features of a copper cement are largely overcome.

The tenacity of this cement is very great and its strength and endurance are remarkable.

If not using it, write for a sample.

CAULK'S COPPER CEMENT IS ALSO MADE IN SHADES OF RED AND BLACK. PER PACKAGE, \$1.50

Sold by nearly all dealers

THE L. D. CAULK COMPANY

PHILADELPHIA, PA. -:- Laboratories, MILFORD, DELAWARE

New Shades New Prices New Interest

ASCHERS NEW ARTIFICIAL ENAMEL

18000 Dentists Using It without one complaint

Wouldn't you like to use a silicate that gives UNIVERSAL satisfaction? One where the powder and liquid are not in the least affected by air exposure, but give perfect results right down to the last drop?

Aschers (New) Artificial Enamel is very easy to mix and always uniform it its action. There is plenty of time to get good, well condensed margins, and the material never crumbles when packing or finishing.

The completed mix always sets within five minutes after insertion, and on account of the use of Beryllium the filling never turns chalky, wears down or washes away.

The new shades match the teeth closely and produce the most beautiful and translucent filling known to dentistry.

If you are using a silicate that doesn't fill all of the above requirements you are not doing your patient or yourself justice.

We are so positive of Aschers (New) Artificial Enamel that we want you to try it for thirty or sixty days. You are sure to be pleased and order more—but if you are not perfectly satisfied we will take the opened boxes off your hands.

THE PINCHES DENTAL MFG. CO. PHILADELPHIA, PA.

Facts and Fallacies about Copper

The distinguishing features of oxyphosphate of copper are, remarkable strength and adhesiveness, with peculiar embalming and preserving qualities, in proportion to its potent copper content.

Dr. W. V-B. Ames, the original producer of oxyphosphate of copper, offered it to the dental profession in 1891. Its decided success induced several imitations, all of which have been found to be mainly zinc oxyphosphates modified with various percentages of copper.

Ames' New Process Oxyphosphate of Copper contains over 90% of black copper oxid, with 71.90% of potent copper. Ames' original, supplied for special cases, contains 99% of black copper oxid.

In view of some offerings of alleged "Copper Cements" in colors, we invite the attention of dentists to the following chemical truths about copper compounds:

A "white copper cement," so advertised, contains 5% of cuprous iodid, which contains 1.66% of potent copper, and gives a dark color on mixing.

A "red copper cement," as advertised, contains 7.29% of cuprous oxid which contains 6.47% of potent copper.

A blue-white copper zinc compound recommended for its copper virtues contains only 18% of copper phosphate and 7.89% of copper.

A cement containing an admixture of about 30% of black copper oxid contains 23.96% of copper.

Comparisons show how far Ames' Oxyphosphate of Copper out-classes the mildly coppered cements in strength, adhesiveness, and sterilizing qualities.

THE W. V-B. AMES COMPANY

1524 Republic Building, Chicago, U. S. A. Shipping Dept., Fremont, Ohio



Will You Get Back of Our Chair?

Please take particular notice of how carefully we have planned for the patient's comfort. We have built a Compensating Back joined to the seat-frame at a point opposite the hip-joint, which allows the

patient to be reclined to any degree without sliding on the seat. We have a Back Frame that supports the back where it needs support and consequently does not produce fatigue. We have Adjustable Arms that admit of accommodating any size of patient. Then there is the Head Rest, note how same can be adjusted to accommodate "My Lady's" coiffure, as well as to give complete rest for the head in any position. Advertising space is limited, but our catalog is not—send for a copy.

We Get Back of Our Chair with a guarantee of satisfaction!

The Ritter Dental Mfg. Co.

CHICAGO, 31 W. Lake St.

NEW YORK, 200 Fifth Ave.

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It's a Very Long Story

to try to tell of all the benefit I am to the busy practitioner, how well I have been constructed and how improved I am over other Electric Engines.

The factory that builds me has issued a beautiful catalog telling all about my swivelled motor that admits of so great an adaptation when using me, and fully describing my many unique features — you had

better send for a copy, Doctor, you will find it contains very interesting reading. They give a very complete description of my friend in the corner, also, and if you want any suggestions for refurnishing your office, you can write this company as they are in a position to supply you with much

in the way of helpful advice. The factory, or any of their branch houses, will render this service without cost to you.

For any information, write-



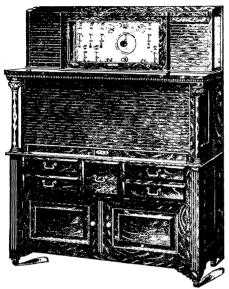
The Ritter Dental Mfg. Co.

Rochester, N. Y.

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C21

DON'T OVERLOOK THIS



Cabinet No. 58.

MANY Switchboard Cabinets have been sold in the last two years and all users have been well pleased with them so far as we know.

There have been some changes in cabinet designs; also changes in the switch-boards but those that are shown here in our No. 58 Cabinet are mostly last year's models and we are going to put them out below cost in order to move them quickly.

Cabinets in both Oak and Mahogany and either Electro Dental or Pelton & Crane Boards:

No. 58 Oak Cabinets, complete with board . . \$150.00 Mahogany, extra 15.00

Several other Bargains are shown in a circular just published.

THE AMERICAN CABINET CO. Two Rivers, Wis.

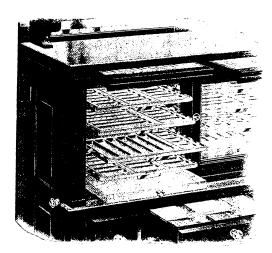
To insure prompt attention, address "Dental Dept."

Something Different

Read this and then ask us for catalog giving a complete description of our No. 91 Cabinet.

Plan of One

Set of Travs



More

Convenient

Than

Drawers

THIS Cabinet has now been on the market long enough to prove by its many users that it is practical. It has several original features not found in any other cabinet.

The trays are all of white glass and removable, and the Cabinet is completely metal lined and finished inside with white enamel baked on.

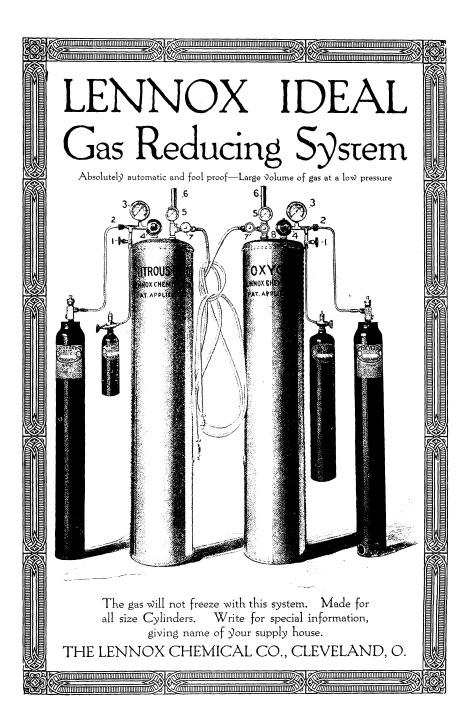
You see this white through clear glass doors, which cannot fail to give your patient the impression of cleanliness in the care of your instruments.

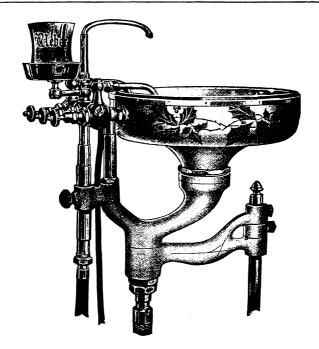
The exterior is of mahogany or oak and harmonizes beautifully with the white interior. No trouble in keeping it clean.

It will be a pleasure to send you a more detailed description.

For prompt attention, address "Dental Dept."

The American Cabinet Company TWO RIVERS, WISCONSIN





THE "WEBER FORTY"

The most beautiful and substantial cuspidor made.

Blown Lead Glass Bowl with No Creases or Laps

Requires less than one-half the amount of water to operate than any other fountain cuspidor.

WILL NOT OVERFLOW

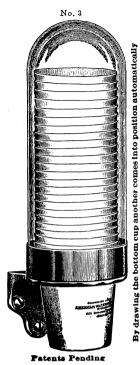
All secretions dropped into the bowl are carried out the shortest possible route to the sewer, and not left floating around in sight of the patient.

NO LEAKY VALVES TO CONTEND WITH

The Weber Dental Manufacturing Co. CANTON, OHIO, U. S. A.

The World's Largest Manufacturers of Fountain Cuspidors

Write for Catalogue descriptive of the Weber Fountain Cuspidors at prices ranging from \$25 to \$40.



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Our Standard Medicinal No. 3 Cups are con-) sidered superior to any others made

Patented Standard Medicinal No. 3 Cups \$1.00 per 100

Standard Outfit 100 Cups, \$1.00 1.00 1 Bracket, .25

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1 Holder,

Our No. 160 Special Cups

are lower in price and are giving general satisfaction.

SPECIAL. No. 160 Cups 50c per 100

SPECIAL OUTFIT \$.50 100 Cups. I Bracket. 1.00 1 Holder. .25

\$1.75

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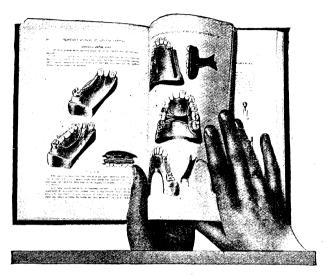


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Vulcanized on the heads of the screws. Run truer than any other Polishers. No screw head to strike the teeth nor mar the work. Price 50 cts. per doz. Use Young's Mandrels. 2 cts. each.

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TANOX

Do you experience any trouble in the treatment of abscessed or putrescent teeth, or do you have soreness after the filling of any root-canal? If so, why not send for a box of "Tanox" and give it a trial?

In my own experience in the dental profession, I find a large percentage of dentists acknowledge that they do have a great deal of worry in the treatment of diseased roots.

Before putting "Tanox" on the market, I experimented with root-canal fillings for nearly ten years, and finally was convinced that the only permanent and successful root-canal filling would have to be a drug or drugs that would absorb all moisture.

"Tanox" is the only root-canal filling that will attain this end. It is composed of a liquid and a powder, and can be used with gutta-percha points if desired.

Send me fifty cents and I will mail you a \$1.00 box of "Tanox," and if used with good judgment, you will learn to depend entirely on it in the filling of root-canals.

You, probably, know the annoyance it is to have a patient return after having the root-canals filled, saying the tooth is sore, and, perhaps, you have gone to a great deal of labor to either crown or put in a nice filling or inlay, and still worse, a bridge.

If you do have any such experience, give "Tanox" a trial and see the security you will feel in the use of it.

Manufactured by

THOMAS McCULLOUGH, D.D.S.

37 So. Wabash Avenue

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THE TETER APPARATUS No. 2 is the most scientifically developed and thoroughly equipped apparatus for the administration of Nitrous Oxide and Oxygen ever invented.

¶ There is no guess work with the Teter Apparatus. Results are absolutely sure and certain.

¶ Continued anesthesia is as easily maintained with the Apparatus and Nasal Inhaler as it is with the Apparatus and Face Inhaler.

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¶ Give Nitrous Oxide and Oxygen WARM to obtain a perfect and safe form of anesthesia which is not accompanied by nausea or other bad after effects.

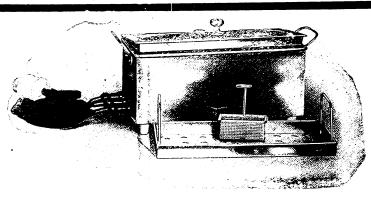
¶ The TETER APPARATUS is being used by hundreds of dentists and is considered by them as being the greatest practice builder in their offices.

For literature and further particulars write us.

Best resuits obtained only when using Teter Nitrous Oxide and Oxygen with the Teter Apparatus.

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The **BEST** Electric Dental Sterilizer



No. 430

BECAUSE IT IS DESIGNED TO MEET THE SPECIAL NEEDS OF THE BUSY PRACTICAL DENTIST.

LARGE TRAY FOR OTHER INSTRUMENTS AND A SMALL SILVERED BASKET FOR BURS, ETC. FINISH IS POLISHED COPPER OR NICKEL PLATE. COVER HINGED-EBONY KNOB TO TAKE HOLD OF. SIMPLE — DURABLE — PROMPT IN OPERATION.

You can obtain this Sterilizer through your dealer. Send us his name and we will arrange a demonstration.

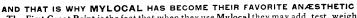
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THREE DENTISTS APPRECIATE FULLY THESE SUPERIORITY VITAL POINTS OF



The First Great Point is the fact that when they use Mylocal they may add, test, weigh and inspect the large, pure cocaine crystals which accompany each bottle and which make their Anæsthetic. This not only gives them definite knowledge as to what they are nsures absolute freshness and perfect safety. This point is obviously so full of common sense that

using but insures absolute freshness and perfect safety. This point is obviously so full of common sense that every intelligent dentist must recognize the force of its bearing on the principles involved in Local Anæsthesia. The Second Great Point is that in Mylocal they have in addition to freshness and safety a combination of chemically pure drugs, scientifically compounded, which gives them the highest efficiency it is possible to obtain in a local anæsthetic.

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The "FUREKA" is the originator of the heart-shape cup which retails for \$.50 per ½ doz. (extra cups) while others ask \$3.00 per ½ doz. for practically the same cup.

We control the only way known by our patent attachment for your patients to renew their own cup.

You can readily obtain extra fees for Dentures with the "EUREKA" retainer inserted.

Upper or lower, \$2.00 per box of six retainers

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The Eminence of Its Advocates

The eminence of its advocates is unassailable proof of the incomparable value of Salvitae in the treatment of pyorrhea alveolaris, gingivitis and other dental affections of constitutional origin.

SALVITAE has the unqualified indorsement of those who have achieved world-wide distinction in dental science. In the most positive terms, these men advocate the employment of the preparation in the treatment of pyorrhea alveolaris, gingivitis and other dental disorders arising from uratic deposits in or about the alveoli.

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SALVITAE excels other uric-solvents and eliminants, in that its action is decidedly more prompt, agreeable and uniform. Moreover, its prolonged administration does not give rise to gastric or intestinal disturbance.

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the solution of a most important problem. Happily the administration of this ideal product is not merely attended by catharsis. Its effects are much more far reaching, and used systematically, Prunoids will restore the functional activity of the whole intestinal cana¹ The glandular structures are stimulated, the muscles are toned and adequate elimination assured.

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INDICATED WHEREVER THE ORAL SECRETIONS ARE FOUND TO BE ACID.

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Zhongiva is prompt and positive in its action and most pleasant to use.
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20-years professional endorsement.
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PYORRHEA

We invite the careful consideration of the dentists to the merits of Sal Hepatica in the treatment of Pyorrhea, in Constipation and Auto-intoxication, and to its highly important property of cleansing the entire alimentary tract, thereby eliminating and preventing the absorption of irritating toxins and relieving the conditions arising from indiscretion in eating and drinking. Write for tree sample.

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DIOXOGEN CONTAINS ONLY ONE-FIFTH THE AMOUNT OF ACID PRESENT IN NORMAL FRESH SWEET MILK

No dentist would object to his patient drinking a glass of milk because of the effect on the teeth of the acid in the milk, yet there is more acid in one glassful of milk than there is in five glassfuls of Dioxogen.

There are no harmful ingredients of any kind in Dioxogen, the total solids are only four parts in ten thousand; ordinary good drinking water is not so pure.

Dioxogen is packed in bottles containing $5\frac{1}{3}$, $10\frac{2}{3}$ and 20 ozs.; it is 25% stronger than the U. S. P. standard and when calculated on that standard costs the consumer at retail from 3 to $3\frac{3}{4}$ c. per ounce.

Dioxogen should be specified because it is the purest and costs no more than poorer products.

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during and after instrumentation is

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presents the first and only preparation for the mouth with Hydronapthol in an agreeable and effective solution. An antiseptic of powerful germicidal strength which instantlydestroys pathogenic bacteria, checks pus formation, neutralizes destructive secretions, relieves sore and bleeding gums—"The most important factor in prophylaxis known."

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The breech-loading principle of the Font with a complete package of continuous feed cotton of unequalled quality and the self-closing cardboard carton of the Waste Receiver that is destroyed with its contents after use, are original features that make these two articles superior to all others for the purpose.



Sanitary Dental Waste Receiver

Aseptic Glass Cotton Font

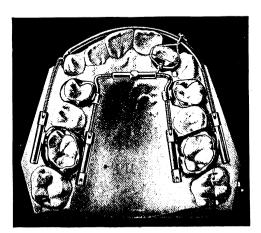
Your dealer will show them to you.

Aseptic Glass Cotton Font, loaded with one package Dentoform Cotton	75c.
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with the fineness stamped on each Dwt.

It will eliminate the buying of an unknown value

We lead, others will follow

				EXPRESSED IN KTS.
22	Solder	stamped	830	fine(20 Kt.)
20	. 66	66	708	"(17 Kt.)
18	"	"	615	"(15 Kt.)
16	"	"	530	"(13 Kt.)
14	"	46	458	"(11 Kt.)

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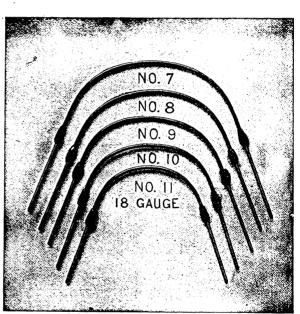
Patented Nov., 1909

Illustrating the different gauges of our Expansion Arches, all having one size thread, flat and smooth on two sides.



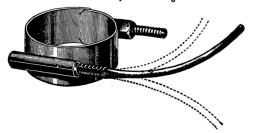
EXPANSION ARCHES

With middle section gauges, 16, 17, 18, 19 and 20 gauge, and in lengths from 43/4 inches down to 3½ inches. All interchangeable and fitting either round or oval buccal tubes.



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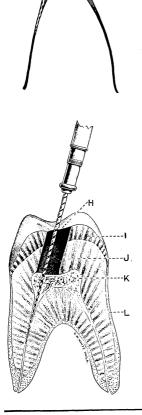




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No. 2 Rubber, extra light red	2.9 5 \$2.	.80	0 lb. lots \$2.65 2.70	20 lb. lots \$2.40 2.60	40 lb. lots \$2.25 2.40
Jet Black Rubber	rlb. 5 lb. 3.50 \$3.	lots 1 .25	0 lb. lots \$3.10	20 lb. lots \$3.00	40 lb. lots \$2.90
Base Plates } \$	r lb. 5 lb. 2.90 \$2	lots 1 .80	0 lb. lots \$2.70	20 lb. lots \$2.60	40 lb. lots \$2.50
	r 1b. 5 lb. 3.50 \$3.	lots 1 .00	0 lb. lots \$2.90	25 lb. lots \$2.80	50 lb. lots \$2.70
Red Vulcanizable Gutta Percha for plates	• • • • • • • • •	• • •	Per lb. \$4.00 4.50 4.25 6.59	10 lb. lots \$3.75 4.25 4.00 6.25	25 lb. lots \$8.50 4.00 3.75 6.60
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Rubber Dam, medium, 5 and 6 inches wide			er yard ro \$1.75 1.35	\$ 0.	olf yard roll 90 70
No. 1 Weighted Rubber for lower plates No. 2 Weighted Rubber for upper and lower plates Black Weighted Rubber for lower plates	······) P	er 1b. \$4.00		-	\$ 20 lb. lots \$3.30

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HARVARD—The All-Round Cement

You take no risk when you use **Harvard Cement** for filling teeth, as a lute for inlays, or for setting crowns and bridges. To whatever dental use it is put, it "makes good." As a filling material, it has the resistive strength which stands up against the blows of mastication; as a lute it has the tensile strength which holds against rocking or prying. Properly mixed it is unexcelled in its resistance to the action of the oral fluids.

Easy to work, rather slow-setting, dense, hard, resistive, when set,—is the standard by which other oxyphosphates are measured.

The twelve colors in which it comes permit approximating as near as possible the shades of the natural teeth in which it is placed.

TWELVE DIFFERENT COLORS

No.		No.		No.		No.	
1. 2. 3.	White Bluish White Yellowish White	5.	Light Yellow Yellow Gold Yellow	8.	Light Pearl Gray Pearl Gray Gray	11.	Green Gray Bluish Gray Brown
			PRI	[C]	E S		
1 ¼ ½-	oz packages, o	one c	olor			''	pkg. 1.25
Li	-oz. packages,	four	colors	· · · · ·		. "	pkg. 2.50

THE S. S. WHITE DENTAL MFG. COMPANY Sole Sales Agent for United States

First Principles Perpetuated

Going back to first principles we find that the requisites of an amalgam filling are that it shall have no contraction, "flow" or spheroiding; shall not leak. A very slight expansion is desirable, makes it hold its place better, assures against its leaking.

True Dentalloy fulfils all these conditions, not once, but all the time. As you found it last week or last month, you find it today or next month. It is "balanced" and aged properly, maintains its qualities indefinitely, is dependable.

In screw-cap 1-oz. bottles.

True	Dentalloy			 	per	oz.	\$1.50
"	"	in	5-oz. lot	 	"	"	1.40
"	"	"	0-oz. "	 .	"	" "	1.35
"	"	"	0-oz, ''	 	"	"	1.25

THE S. S. WHITE DENTAL MFG. CO.

Philadelphia, New York, Boston, Chicago, Brooklyn, Atlanta, Rochester, New Orleans, Cincinnati, Toronto, Montreal, San Francisco, Oakland, Sacramento and Berlin, Germany.

The S. S. White Dental Mfg. Co's. Gold Plates, Solders, etc.

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		Less than 1 oz.	I-oz.	lots.
Gold	Plate.	18-K\$0.89 dwt.	\$0.84	dwt.
44	14	20-K	.92	44
4.6	"	Coin	.98	
46	44	22-K Light (non-oxidizable) 1.05 "	1.00	4.4
**	4.4	22-K Dark 1.05 "	1.00	4.6
44	44	24-K 1.13 "	1.10	4.4
66	44	Clasp Prices subject to Platinur	_	
**	"	Crown Metal (Gold and Platinum). Subject to Hathur	11	
**	Shells.		\$ 1 02	dwt.
4.6		22-K	1.00	44
**		, 24-K (1½ and 2 dwt) 1.12 "	1 09	
44		18-K Round and Half Round95	.90	
44	44	20.K " " " 103 "	.98	6.4
44	4.4	Clasp, " " Prices subject to platinum	4	4:
44	6.6	Ligature, 18-K\$1.25 dwt.	\$1.20	dwt.
			ψ1.20	awt.
		GOLD SOLDERS		
6.6	Solder	for 14 K Gold Plate	.60	" "
"	"	" 16-K " "	.70	4.6
"	4.4	" 18-K " "85 "	.80	"
• 6	"	" 20 K " "	.90	" "
4.6	• •	"Coin " "	. 90	4.6
	4.4	" 22-K " "	.95	**

All of these prices are subject to change without notice.

The 1-ounce rate is for SPOT CASH ONLY, and does not apply to Plates cut to pattern.

The 1-ounce quantity can be made up of assorted lots from any of the items noted, each being charged at its respective rate.

THE MARKS ON THE SOLDERS

Hereafter S. S. White Gold Solders will be stamped to indicate their actual fineness in addition to the Karat of Plate with which they are to be used.

The fineness of the various grades expressed in thousandths is as shown in the annexed table:

T		•
For 14 K Plate0.437	For 20 K Plate	0.739
	11 1 10000000000000000000000000	
" 16 K "	11 22 K 11	900
20 12 1001	22.12	
" 18-K "	11 Cain II	0.05
10-11	Com	

Two characteristics of these Solders for the help of the dentist are:

1. When used with the proper Plate they make joints which are homogeneous with the Plate in strength and color.

2. They are accurately graded as to melting point; each Solder melts at a temperature which makes its use with its appropriate Plate absolutely safe.

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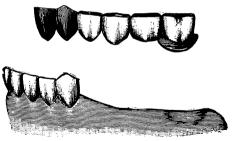
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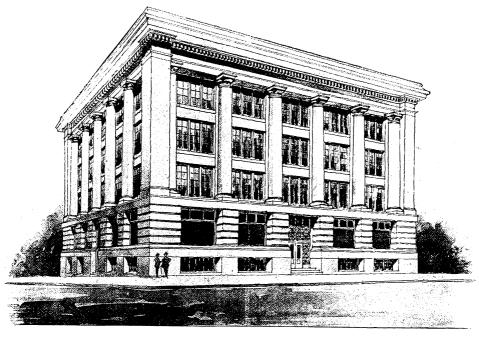
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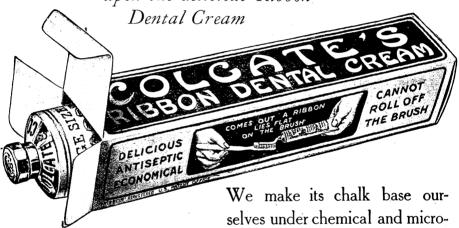
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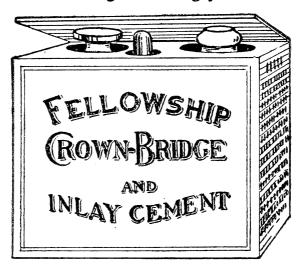
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